NPS Form 10-900
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OMB No. 1024-0018

144

United States Department of the Interior
National Park Service

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NAT. REGISTER OF HISTORIC PLACES
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES REGISTRATION FORM

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in How to Complete the National Register of Historic Places Registration Form (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name Theodore Roosevelt Dam National Register District

other names/site number _____

2. Location

street & number NA not for publication ___
city or town Roosevelt vicinity x
state Arizona code AZ county Gila code 007 zip code
Maricopa 013
_____

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1986, as amended, I hereby certify that this ____ nomination ____ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property _X_ meets ____ does not meet the National Register Criteria. I recommend that this property be considered significant ___ nationally _X_ statewide ___ locally. (___ See continuation sheet for additional comments.)

1 Edward Friedman 2 Evan J. DeBlasio
Signature of certifying official Date

1 Bureau of Reclamation 2 USDA Forest Service
State or Federal agency and bureau

In my opinion, the property _X_ meets ____ does not meet the National Register criteria. (___ See continuation sheet for additional comments.)

James W. Garrison AZSHPO 13 JANUARY 1998
Signature of commenting or other official Date

ARIZONA STATE PARKS
State or Federal agency and bureau

4. National Park Service Certification

I, hereby certify that this property is:

X entered in the National Register _____
___ See continuation sheet.
_____ determined eligible for the _____
National Register
___ See continuation sheet.
_____ determined not eligible for the _____
National Register
_____ removed from the National Register _____

_____ other (explain): _____

Signature of Keeper — 3/16/98 Date of Action

5. Classification

Ownership of Property (Check as many boxes as apply)

___ private
___ public-local
___ public-State
_X_ public-Federal

Category of Property (Check only one box)

___ building(s)
_X_ district
___ site
___ structure
___ object

Number of Resources within Property

Contributing	Noncontributing	
3	_____	buildings
8	_____	sites
_____	1	structures
_____	_____	objects
11	1	Total

Number of contributing resources previously listed in the National Register _____

Name of related multiple property listing (Enter "N/A" if property is not part of a multiple property listing.)

NA

6. Function or Use

Historic Functions (Enter categories from instructions)

Cat: Industry	Sub: Energy Facility
Industry	Waterworks
Government	Government Office
Domestic	Camp
Industry	Manufacturing
Funerary	Cemetery

Current Functions (Enter categories from instructions)

Cat:	Sub:
Industry	Energy Facility
Social	Clubhouse
Funerary	Cemetery
Domestic	Camp
Other	Historic Archaeology Sites

7. Description

Architectural Classification (Enter categories from instructions)

Other Early 20th Century

Materials (Enter categories from instructions)

foundation concrete
roof concrete, sheet metal
walls Sandstone, limestone, stucco
other

Narrative Description (Describe the historic and current condition of the property on one or more continuation sheets.)

8. Statement of Significance

Applicable National Register Criteria (Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing)

_X_ A. Property is associated with events that have made a significant contribution to the broad patterns of our history.

____ B. Property is associated with the lives of persons significant in our past.

____ C. Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.

_X_ D. Property has yielded, or is likely to yield information important in prehistory or history.

Criteria Considerations (Mark "X" in all the boxes that apply.)

____ A. owned by a religious institution or used for religious purposes.

____ B. removed from its original location.

____ C. a birthplace or a grave.

_X_ D. a cemetery.

____ E. a reconstructed building, object,or structure.

____ F. a commemorative property.

____ G. less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance (Enter categories from instructions)

Engineering
Ethnic Heritage: Native American
Archaeology: Historic

Period of Significance 1903-1911

Significant Dates

Significant Person (Complete only if Criterion B is marked above)

Cultural Affiliation Apache(Western)

Architect/Builder

Narrative Statement of Significance (Explain the significance of the property on one or more continuation sheets.)

9. Major Bibliographical References

Bibliography (Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS)

___ preliminary determination of individual listing (36 CFR 67) has been requested.
_x_ previously listed in the National Register Theodore Roosevelt Dam
___ previously determined eligible by the National Register
_x_ designated a National Historic Landmark (Roosevelt Dam)
___ recorded by Historic American Buildings Survey # _____
_X_ recorded by Historic American Engineering Record # AZ-6 Theodore Roosevelt Dam
AZ-6-a Theodore Roosevelt Dam, Power Plant
AZ-4, Power Canal

Primary Location of Additional Data:

___ State Historic Preservation Office
___ Other State agency
_x_ Federal agency
___ Local government
___ University
___ Other

Name of repository: Central Arizona Project Repository

10. Geographical Data

Acreage of Property See Continuation Sheet

UTM References (Place additional UTM references on a continuation sheet)

	Zone	Easting	Northing		Zone	Easting	Northing
1	__	_____	_____	3	__	_____	_____
2	__	_____	_____	4	__	_____	_____

xx See continuation sheet.

Verbal Boundary Description (Describe the boundaries of the property on a continuation sheet.)

Boundary Justification (Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title Christine E. Pfaff, Historian

organization Bureau of Reclamation date 7/1997

street & number P.O. Box 25007 telephone 303-236-2722 ext 324

city or town Denver state CO zip code 80225

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps

A **USGS map** (7.5 or 15 minute series) indicating the property's location.
A **sketch map** for historic districts and properties having large acreage or numerous resources.

Photographs

Representative **black and white photographs** of the property.

Additional items (Check with the SHPO or FPO for any additional items)

Property Owner

(Complete this item at the request of the SHPO or FPO.)

name _____

street & number _____ telephone _____

city or town _____ state _____ zip code _____

Description

I. Introduction

The Theodore Roosevelt Dam National Register District is comprised of resources that are all associated with the initial construction of Theodore Roosevelt Dam (Roosevelt Dam). This period encompasses the years 1903-1911. Collectively, the resources in the district convey information about various aspects of the construction history of the dam.

A total of twelve resources are included in the district. Only one of these, Roosevelt Dam, is non-contributing. This is due to the massive alterations it has recently undergone. Roosevelt Dam was designated a National Historic Landmark (NHL) in 1963 and was also listed in the National Register of Historic Places.

In 1984, the Secretary of the Interior approved the modification of Roosevelt Dam as a part of the Central Arizona Project's Plan 6 (Plan 6). Modifications were designed to meet Safety of Dams and flood control purposes. Engineers had determined that the dam could not safely release water during a maximum flood event. In addition, an event called a maximum credible earthquake occurring near the dam could potentially cause it to fail. (Fact Sheet, May 1991)

Due to the modifications that have irrevocably altered its historic appearance, Roosevelt Dam is being dedesignated as an NHL. The National Park Service requested that a revised National Register nomination be prepared that includes the dam as a non-contributing property as well as other associated resources. This nomination fulfills the Park Service's request.

With the exception of Roosevelt Dam and three standing buildings included in this nomination, the remaining eight properties are historic archaeological sites. These were all identified and documented as part of the mitigation for Plan 6 of the Central Arizona Project. The Bureau of Reclamation awarded Dames & Moore a contract in 1986 which included intensive historical archaeology studies at Roosevelt Dam within the area of potential impacts. Dames & Moore recorded a total of thirty-five sites encompassing over 500 archaeological features. All but eight sites have been excluded from this nomination for two primary reasons: the sites have been

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completely destroyed or so heavily collected/excavated that they lack integrity; or they are outside the period of significance/or construction-related theme of the nomination.

Information in this nomination on the historic archaeological sites is for the most part excerpted verbatim from the Dames & Moore publication entitled The Historical Archaeology of Dam Construction Camps in Central Arizona, Volume 2A, Sites in the Roosevelt Dam Area prepared by James E. Ayres et al.

Following is a list of the non-contributing and contributing resources within the district beginning at Roosevelt Dam and heading generally east.
Non-Contributing Resources:
A. Theodore Roosevelt Dam

Contributing Resources:
A. Roosevelt Dam Buildings
Power Plant
Transformer House
B. Construction Zone Historic Archaeological Sites
Cableway Site
Sand Plant Site
Powderhouse and Water Tank Site
Cement Mill Site
Clay Quarry Site
C. Administration Building at Government Hill
D. Roosevelt Cemetery Site
E. Cottonwood Creek Apache Camp Historic Archaeological Site
F. Power Canal

The boundaries of the historic district extend in a generally linear, but somewhat disconnected fashion, following the route of the Power Canal which has its terminus at Roosevelt Dam.

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Beginning at the dam, the Power Plant, Transformer House and a number of the construction zone sites, namely the Cableway, Powderhouse and Water Tank, Sand Plant and Cement Mill form a group of nearly contiguous properties. Moving eastward along the Power Canal, the next property within the district is the Administration Building. It is a discontiguous element. Moving farther east are the Clay Quarry, Roosevelt Cemetery, and Cottonwood Creek Apache Camp, all discontiguous to each other but linked by their proximity to the power canal. The canal continues eastward for approximately 17 miles to its beginning point at a diversion dam on the Salt River. Excluded areas between nominated properties have either lost Roosevelt-related historic properties through later construction impacts, or were never developed and remain open terrain, or contain properties unrelated to Roosevelt Dam construction. In summary, the excluded areas lack significance relative to the construction of Roosevelt Dam.

The district is located within the boundaries of Bureau of Reclamation and United States Forest Service (Tonto National Forest) property in the canyon and mountain country of south central Arizona. Roosevelt Dam is located at the head of a narrow rugged canyon where the waters of Tonto Creek join the Salt River 31 miles northwest of Globe Arizona. This is also the junction of State Highway 88 and State Highway 188. The dam blocks the flow of the Salt River, creating a lake 23 miles long in the Tonto Basin. All of the resources in the district are located along the south side of Roosevelt Lake and to the east of Roosevelt Dam.

II. Descriptions of Individual Contributing and Non-contributing Resources

THEODORE ROOSEVELT DAM

Subsequent to the modifications begun in 1989 and completed in 1996, Roosevelt Dam has a completely altered appearance (see photos #1-3). The original rubble-masonry gravity arch dam is now encased in a new concrete block structure.

The original dam had a structural height of 280 feet and measured 723 feet long at the crest; the dam now has a structural height of 357 feet and a crest length of 1,210 feet. The top width is 21.6 feet

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compared to the original 16 feet and the maximum base width is 196 feet compared to the original 184 feet. New spillways at each abutment replaced the original ones equipped with Tainter gates. The spillways now contain four 21-foot-wide by 30-foot-high top-seal radial gates. Massive concrete thrust blocks were placed on each abutment and around the new spillway openings. The thrust blocks serve as gravity sections for transfer of arch loads from the dam into the foundation.

As a reminder of the original design, the parapet wall along the downstream crest of the dam incorporates evenly spaced engaged pilasters supporting the original light fixtures.

POWER PLANT

Constructed between 1906-08, the original Power Plant is a rectangular plan building measuring approximately 126 feet long by 36 feet wide and 51 feet high (see photo #4). It is located at the base of the downstream side of the dam on the southeast end. The rear or southeast wall of the Power Plant abuts the canyon. The roof slopes slightly up towards the rear and is concealed behind a stone parapet wall along the river (northwest) facade. The original parapet wall, which was removed during a 1920's remodelling, is in the process of being restored. With the exception of the southeast wall, exterior walls are constructed of reinforced concrete faced with square-cut dolomite limestone blocks laid in regular courses. Stones are quarry-faced and separated by tooled concave joints. The canyon wall of the building is all exposed formed concrete; there is no stone facing.

The original building's appearance has been altered by the addition of an exterior generator/turbine unit and transformer station in the early 1970's. At that time, all of the turbines and generators inside the plant were removed and replaced with a single 36mw modern unit. The new power plant was installed in front of the old structure in a massive concrete pad which conceals the lower portion of the original power house and much of the rest of the facade. The original entrance in the lower level of the southwest elevation has been totally obscured and blocked off.

During the recently completed modifications, the 1970's turbine was replaced and the 36mw generator overhauled. An entirely new 16-foot diameter penstock was constructed that skirts the

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dam on the south side and terminates at the new river outlet works downstream from the earlier ones. A smaller 12.5-foot diameter 408-foot long penstock extends from the 16-foot diameter penstock through the northeast end of the old Power Plant to the new turbine.

The primary entrance to the Power Plant was relocated to what was originally a window on the second level of the northwest facade. The opening is one of a row of five evenly-spaced large segmental-arched windows that all originally contained multi-paned wood sash units. Two of the windows with original sash are still visible from the interior of the building. Stone belt courses originally delineated each level of the building. Today, only the beltcourses between the second and third levels and at the roofline are clearly visible.

Above the arched windows on the northwest facade are fourteen evenly-spaced square windows with stone sills and splayed lintels. Each window originally contained a 9-pane steel sash that has recently been replaced with 6-inch square glass blocks. A single 12-pane steel sash window exists in the third level of the northeast facade; a similar window in the southwest elevation has been infilled.

The interior of the Power Plant is one large space open to the ceiling. Walls are of concrete and the steel roof truss system is exposed. Suspended from the ceiling is the original overhead 40-ton bridge crane. A supplementary 3-ton jib hoist was recently added to handle equipment. The hoist is located on a new service bay platform constructed 16 feet above the original floor at the southwest end of the building. At the opposite end of the building a new enclosed control room with concrete block walls has recently been completed. At the lower level of the northeast end of the building the new penstock cuts through the building (a hatch in the roof was used to lower pieces of the penstock in place). On the northeast end wall the circular penetration of the removed 1970's penstock is visible.

Various original interior galleries or platforms that housed different equipment are reached by flights of metal steps. Along the rear of the Power Plant in the area originally occupied by the temporary generating unit was located the original control room. The original control panel is still in place as are old wires on wooden insulators. Behind the original control room and separating it from the canyon wall is an access corridor.

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Although the Power Plant has been altered over time, enough of its original form and materials remain to convey its original appearance and function.

TRANSFORMER HOUSE

Located about 600 ft downstream and on the same side of the Salt River as the Power Plant is the Transformer House. It is a three-story rectangular plan building measuring approximately 30 feet wide by 82 feet long (see photos #5 and 6). A flat concrete roof encloses the 53-foot high structure which sits on a concrete foundation. Exterior walls are of reinforced concrete faced with random-laid rough-cut sandstone blocks. Convex tooled joints separate the stones. A beltcourse below the first, second and third story windows and at the roofline add definition to the flat building surface. Corners are accentuated by stone quoins.

The main entrance to the building is through a segmental-arched doorway located off-center in the north or riverfront elevation. A pair of non-original flush wood doors are set back in the entryway. Above the doors the transom has been filled in with board and batten siding. A short flight of concrete steps leads up to the entrance. A second entry door is located in the center of the east elevation.

The type and arrangement of windows varies by floor. Tall rectangular multi-paned steel sash windows puncture the north, south and west elevations at the first floor. On the south facade, several of the windows have been boarded over and ductwork to an exterior mechanical unit has been installed in one of the eight windows. At the second floor, a pair of 6-over-6 wood windows exists at both the east and west ends; the other elevations are without windows. At the third floor, six 6-over-6 wood windows are evenly spaced on the north and south facades. The west elevation contains six round window openings; the east elevation has no windows. All but the round windows have cut sandstone block surrounds.

Other exterior features include a concrete platform with a simple metal railing at the west end of the building. Originally, lightning arresters for the Valley power line were placed here. Metal bolts and

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plates embedded in the wall above once held electric wires in place. On the north elevation, a fire escape leads from a third floor window up to the roof. Two small gable-roofed bat roosts installed by the Arizona Division of Wildlife now sit on top of the building.

The interior of the building is vacant except for the bats occupying the second and third floors. The original purpose for the building became obsolete when the transformers were moved to a third floor addition to the powerhouse in the 1920's (the addition has since been removed and the original roofline restored). The transformer house was converted to a storehouse and then used as a construction field office up until 1993.

The first floor consists of an open area at the west end inside the entrance. This was originally the shop space. A center corridor flanked on both sides by a row of bays separated by concrete walls occupies the rest of the floor. These bays originally contained transformers but were later used for storage and offices. Doors and windows have been added along the corridor face of the bays. A non-original dropped ceiling exists throughout the floor. Interior walls are concrete as is the floor. Due to the thickness of the walls, there are deep window recesses.

A simple staircase along the south wall at the west end of the building leads to the second floor. From a concrete landing at the top of the stairs, a corridor extends from the west to east end of the building. Evenly spaced along both sides of the corridor are a series of numbered and labelled concrete bays. These were originally the bus compartments. The stairs to the third floor are located on the north wall. The upper floor is one undivided space with a concrete floor and concrete ceiling. Along the south wall is a row of concrete compartments. The upper floor originally contained the oil switches. The equipment has since been removed.

CABLEWAY SITE (AZ U:8:165)

Two parallel 1200-ft long cableway systems were set up in late 1905 to span the river at the axis of the dam about 350 ft above the streambed. The cableways were manufactured by the Lidgerwood Company of Chicago and consisted of wood-frame, cross-braced towers set on leveled masonry

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foundations. At the top of each tower were pulley mechanisms for the cables as well as a small working platform. Massive logs buried in excavated tunnels served as anchors to help fasten the towers in place. An anchor cable ran from the top of each cable tower through the tunnel entrance and was wrapped around the log. Heavy cable was suspended across the dam site between the towers. These cableways had a capacity of about 10 tons and were used to transport rock, concrete, equipment and occasionally workers in large buckets.

The Cableway Site is an historic archaeological site located high above the left or east abutment of Roosevelt Dam on a very steep hillside. Loose rock and 80-ft high sheer cliffs make access difficult. The beginning of the Apache Trail (now part of State Route 88) passes through the site. The cableways have long been dismantled and since the site is largely on bedrock, it is essentially a surface phenomenon.

In the 1986 survey, 65 archaeological features were defined at the site. The range of types of features was relatively limited. The most prominent of these were two foundations for the Lidgerwood cableway towers (features 2 & 6), two rather elaborate log anchors for these towers (features 3 & 8) and two foundations for buildings that housed the electric engines to operate the cables (features 1 & 4). Other features included: stone retaining walls used to stabilize slopes, to support pathways across the steep hillside, and to allow for the creation of level earthen platforms behind them (17 total); the remnant of a wooden staircase; eight power pole holes; a total of 32 various types of anchors (U-bolt, eyebolt, L-bolt, bar, rock drill) used to stabilize the various pieces of equipment installed across the hillside; and an octagonal concrete water tank.

A total of 325 items representing an estimated minimum of 251 artifacts were collected from the surfaces of 17 features, as well as selected isolated artifacts from the general site surface. Given the construction nature of the site it is not surprising that the greatest number of artifacts (34%) represented tools and hardware. The next common function represented were food containers suggesting that some of the construction workers were perhaps living within the construction area. Architectural artifacts, including 29 nails, 4 electrical insulators, and a few miscellaneous items were also found. Lastly, a number of beer containers, a cartridge and an Apache tulpai strainer represent

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a leisure and recreation function at the site. The hints of an Apache presence were attributed to the 1913 raising of the Roosevelt spillways. Ten to fifteen Apaches worked on that project and probably established a camp near the westernmost cableway.

With the widening of the Apache Trail (a segment of State Highway 88) immediately east of the left spillway of Roosevelt Dam as part of the Plan 6 Project, several of the features recorded in 1986 were destroyed. These include the westernmost cableway foundation (feature 2) and engine room (feature 1). The remaining features retain sufficient integrity to convey information about the placement and original configuration of the cableway system.

Feature 4 is the foundation for an engine room that served the Lidgerwood cableway tower at feature 6 (see photos #6 through 10). Historical photographs indicate the structure was a simple frame building with unframed windows and doors and a shed roof. There was a dormer in the roof that provided access for the cable from the tower into the engine room.

Feature 4 is located on a ledge about 1/4 of the way down a steep, west-facing cliff. The ledge measures only about 20 ft square and is supported by dry-laid retaining walls on the north and south sides. The northern wall is 11 ft long and the southern 5 ft long. Wood beams laid out in a rectangular plan are bolted into a rock foundation. The beams measure 13.5 inches by 13.5 inches.

Feature 6 is the foundation for the higher of the two Lidgerwood cableway towers at the south end of the dam. It is located on the top of a rocky spur projecting northwest off the main ridge in the site. The spur is bounded by sheer cliffs on the north and west, and by an extremely steep slope on the east.

The foundation area appears to have been leveled by removing jagged bedrock. The foundation consists of four wall bases constructed of rock rubble set in concrete. Three of the walls are 3 ft wide; the fourth, on the east side, is 4.5 ft wide. The foundation forms an approximate rectangle with maximum dimensions of 14 ft by 16 ft. Four horizontal wooden base plats, measuring 12 inches by 12 inches in cross section are bolted to the top of the masonry foundation with 1-inch diameter bolts. These form a roughly 12 ft square tower base.

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Feature 8 is a cableway tower anchor. It is located on a steep, northwest-facing slope, 75 ft south of the tower foundation at feature 6. A mostly collapsed tunnel runs horizontally into the hillside in a southwesterly direction. The anchor log used here consisted of a solid, 30-inch diameter pole.

A reconnaisance survey conducted by Dames & Moore revealed that the counterpart cableway foundations on the north side of the Salt River no longer existed and were probably destroyed during the enlargement of the Roosevelt Dam spillways.

SAND PLANT SITE (AZ U:8:166, ASM)

Site AZ U:8:166 is the remnants of the sand crushing plant and related facilities that were built about midway between the cement mill and the mixing plant. The latter was located on the southern end of the dam axis and has been completely destroyed. A 1,700 ft long Leschen aerial tramway connected the mill, sandplant and mixing plant. Limestone (dolomite) and sandstone were quarried locally and crushed at the sand plant to produce the sand and aggregate needed in cement and concrete. The crusher was operated with an electric motor.

The site is located on a steep hillslope just upstream from the east abutment of the dam, directly above the old road leading down to the dam (Rte 188) and above the power canal. Historical photographs depict the Sand Plant as a large, multilevel, timber framed structure covered with vertical planking. One of the photographs indicates that there were windows or doorways at six different levels, and the building was estimated to be about 40 ft. high. A timbered platform extending to the north of the Sand Plant was probably used to deliver sand to buckets on the Leschen tramway for transport to the mixing plant at the south abutment of the dam.

During the 1986 Dames & Moore survey, seven features were identified, representing only a portion of the facilities that once stood in the area. Of the seven features, three have survived : the remnant of the mostly buried concrete foundation of the sand crushing building (Feature 4); an associated large rectangular concrete machinery mount that has obviously been moved from its original position farther upslope in an upper portion of the plant (Feature 2); and a large concrete-walled structure that

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was possibly a sand bin but may have originally been constructed as an oil tank (Feature 1) (see photos #11 and 12). Features destroyed since 1986 include the hollows of two adjacent quarry areas each measuring approximately 100 ft by 200 ft in size (features 6 & 7); and two sections of dry-laid rock retaining walls that probably were built to accommodate some construction activities related to the operation of the plant (features 3 & 5). Artifacts were sparse and only 18 items were collected, all from Feature 4. These were primarily nails and tools and hardware.

The most prominent of the seven recorded features is the possible sand bin (feature 1, see photo #11). Historical documentation regarding this structure is limited and confusing, and no artifacts were found in association with the building. Dames & Moore suggest that the feature is the remnant of the sand bin that is reported to have been built adjacent to the rock crusher. Unfortunately the location of the sand bin is not indicated on any historical maps nor do any of the historical photographs indicate how the sand would have been transported to this building from the crusher 300 ft to the east and to the Leschen tramway for transport to the mixing plant. Another possibility is that the building served as an oil storage tank. Exact use of the structure remains in question.

The feature consists of the remains of a very substantial cast-in-place concrete building set into the side of a north facing slope. The building is located in a narrow triangular area between State Routes 88 and 188, which meet just to the east. Only three walls of the building can still be seen. If the rear wall still exists it lies buried under slope debris, which has almost completely filled the interior of the building as well. At their tops, the visible walls are 1 ft wide. The front elevation is 15.3 ft high and about 80 feet long. The visible portions of the side walls are about 22 ft long.

Walls were built by pouring concrete into wooden forms constructed in sections, ranging from 10 ft to 18.5 ft in length. The concrete was reinforced with 1/2-inch smooth iron rods used both vertically and horizontally to form a latticework inside the wall. These rods are visible in nine rectangular openings, which were knocked through the front wall subsequent to construction. The openings vary slightly in size but average about 26 by 30 inches. They were presumably created to allow some type of redesign or reuse of the building. There are no other openings in the visible walls.

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POWDERHOUSE AND WATER TANK SITE (AZ U:8:162 ASM)

Dames & Moore identified six features (1, 2, 3, 5, 6, 7) at this site, named after its two most prominent components, the Powderhouse (feature 5) and Water Tank (feature 1). The other features include: two small dry-laid rock retaining walls that appear to have built to support pathways in the vicinity of the Powderhouse (features 6 & 7); a retaining wall and earthen platform adjacent to the masonry tank (feature 2) and an enigmatic, undated, circular rock structure located on the hillside (feature 3). Twenty-one artifacts were collected by Dames & Moore from Features 1, 2, and 5, primarily of the tools and hardware category.

The Powderhouse is a precariously standing stone building located on the steep, west-facing slope of a wash (see photo #13). The building measures 8 ft by 10 ft and has an entrance on the north. The structure has three masonry walls built against the sharply sloping bedrock of the hillside, which forms the fourth (east) side. The three free-standing walls, which are an average of 1.5 ft thick, are constructed of coursed rubble masonry with mud mortar. The roof, which is still intact, is composed of a series of east-west running joists, with one end resting on a bedrock shelf and the other on the top of the west wall. On top of the joists are north-south running cross beams covered by a layer of corrugated tin roofing. The relatively good condition of the roof suggests it may have been refurbished after original construction of the building.

The entrance on the north side of the building has a wooden door frame, but the door has been removed. The interior floor is dirt.

Based on a comparison with similar structures at Horse Mesa construction camp and at Camp Dyer adjacent to the diversion dam across the Aqua Fria River, Dames & Moore concluded that the structure is a powder house in which explosives were stored. It may be directly related to the adjacent quarries designated as part of the Sand Plant site.

The Water Tank is a circular masonry structure located on an extremely steep, north-facing slope. The tank is built into the slope near the top of the mountain, and an associated water line descends

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sharply from it to the northwest. The tank measures 12.7 ft in diameter and 10.5 ft high. The walls are constructed of mortared rock masonry and the top consists of a concrete cap. An access hole in the top is covered by a 26-inch diameter, round metal plate. A 3.5-inch diameter overflow pipe protrudes through the masonry on the north side of the cistern, 5 inches below the top of the wall. A 2-inch diameter water pipe, extending from the base of the water tank on the north, connects with the water line that runs downhill to Route 88 (Dames & Moore did not assign a feature number to the water line). For most of its length, the water line lies on the ground surface, however, on especially steep rocky parts of the slope, dry-laid rock supports carry the line.

The Water Tank appears to have been repaired or enlarged since it was first built. The lower 7.5 to 8 ft is constructed of well-fitted plain ashlar masonry with a very weathered appearance. The upper 2.5 to 3 ft is constructed of more irregular stonework that in not as discolored from exposure as the lower portion of the tank.

The tank does not appear in any historic photographs. Although its precise function, method of operation, and date of construction and modification are unclear, it undoubtedly is related to the dam. It could have served the construction era water supply, as a reservoir for the hydraulically operated sluicing tunnel gates, or both. The adjacent oval earthen platform measuring about 15 ft by 25 ft and supported on the downslope and western sides by a curved, dry laid rubble retaining wall was probably built to facilitate construction of the tank.

THE CEMENT MILL SITE (AZ U:8:167 ASM)

This site is the remains of the cement mill used during the construction of Roosevelt Dam. Completed in 1905, the mill was a key element in the cluster of facilities located within the dam construction zone. The mill site is located on a north-facing hill slope about one-third mile east of the dam. The location of the mill is very steep, which allowed gravity to be used in transporting materials within the mill. The highest floor in the mill was some 60 ft above the lowest level.

Limestone and clay were stored in bins at the upper levels of the mill. Both ingredients were crushed

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and dried. They were then mixed, approximately three parts limestone to one part clay, and then pulverized in a pebble mill. This mixture was then fed into rotary kilns and burned to form semi-vitrified clinkers. California crude oil was burned to heat the kilns, and a 2,000 barrel storage basin for fuel oil was built just to the east of the mill. The final step in producing cement was grinding the clinkers into a fine powder and allowing it to cure in nearby bins.

Dames & Moore identified seven features at the site in 1986. They determined that the upgrading and paving of State Route 88 in the 1950's had destroyed the lower portions of the site. The State Route 88 relocation completed since 1986 in conjunction with the new Roosevelt Lake Bridge has also impacted the site although the main feature, the cement mill foundations (feature 1), is still intact. The other extant physical remains noted are part of a rock wall and a short piece of the rail bed to the west of Feature 1. Features recorded by Dames & Moore that no longer exist include: two limestone quarries (features 2 and 3), the remnants of an 8 ft by 12 ft stone structure presumed to be a powderhouse (feature 4); remains of a railbed (feature 5); a 48 ft long concrete water tank uphill from the mill (feature 6); and three retaining walls (feature 7). Although the archaeological evidence adds relatively little to the documentary record, it does positively confirm the location of the mill and provides a physical perspective to the huge dimensions of the facility.

Feature 1 is the remains of the cement mill itself (see photos #14 through 17). Dressed, stone masonry walls enclose an area 167 ft east to west between two sets of steps. The ragged northern edge of the feature, which was destroyed by State Route 88 in the 1950's, extends a maximum of 83 feet from the back wall. Within these bounds are numerous machinery mounts consisting of rectangular concrete blocks with embedded threaded bolts.

Remaining portions of concrete floors are found at four different levels of the feature. Below the lowest level, are the remains of what appears to be a kiln. Although filled with rubble, a portion of the arched ceiling is visible.

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CLAY QUARRY SITE (AZ U:8:171 ASM)

The Clay Quarry Site is located approximately a mile east of the other construction zone sites. It was obviously sited to take advantage of a local clay deposit that was mined for use in the manufacture of cement. Historical documentation indicates that this clay deposit was discovered during the construction of the power canal. Quarrying here probably began sometime in 1905-06 and ended some time in 1910.

Little has survived of the quarrying operations except the quarry itself (feature 3) (see photo #18). The four other features identified include three related to the small railway used to transport the clay to the cement mill (a dirt road that was almost certainly the rail bed, feature 1, and remains of two bridge foundations, one across a wash at the south end of the site and another across the power canal, features 2 and 5) and an ambiguous rectangular rock-walled enclosure (feature 4) whose purpose and association is unknown. Feature 5 is being included within the boundaries of the power canal rather than the quarry since it is contiguous to the canal and not the quarry. The entire site is a surface phenomenon and only four artifacts were noted by Dames & Moore. This site was not impacted by the Roosevelt Dam modifications project.

The clay quarry is not a pit, but rather an excavation into the side of a northwest-facing hill. The quarry area measures approximately 100 ft. by 425 ft. The quarried material is a fine-grained, bluish-grey shale rather than an alluvial clay. This proved to be excellent material for manufacturing Portland cement.

ADMINISTRATION BUILDING, GOVERNMENT HILL

Constructed in 1904, the Administration Building is the only construction-era building to survive in any of the original residential areas (see photos #19 through 24). It is sited on a hillside above Lake Roosevelt a little over a half-mile from the dam. Known as Government Hill, this area served as Reclamation headquarters for the Roosevelt Dam project from 1904 onwards. Frame cottages, tent houses, and a variety of support facilities were constructed to shelter and care for Reclamation staff. Today the area occupied by buildings is landscaped with lawns, gardens and mature palms.

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Although only the administration building is original, ten postconstruction houses have been built following approximately the original configuration of residential structures on the hill.

Archaeological studies were conducted by Dames & Moore in the vicinity of Government Hill to be affected by the rerouting of State Route 88. The area of focus was outside the compound of buildings described above. Six archaeological sites were identified and studied. All had been impacted by previous modifications and realignment of Route 88. The largest site was the remnants of the administrative and residential structures of Government Hill itself. The East Annex site was originally the site of two hospitals and six residences. The four other sites were located to the west of Government Hill and included remnants of engineers' housing historially referred to as the Bullpen, the jail site, the West Annex site, and the Cement Mill camp. All sites have been impacted by road construction since being recorded by Dames & Moore.

The Administration Building is a one-story wood-frame H-plan building with an elongated center section. Exterior walls are stuccoed and the roofing material is sheet metal. The front of the building faces north and features a porch that runs the full length between the projecting end bays. Porch supports are chamfered square posts with a simple wooden railing between them. Porch flooring is painted wood boards. In the center of the porch are two side-by-side entrances that are missing doors. To the west of the double entrance are two paired 4/4 vertical wood windows with a wood door between them. Another door leads off the porch into the west end bay. To the east of the double entrance are three vertical 4/4 windows, one containing a paired 4/4 wood window. The north elevation of each projecting end bay contains two paired 4/4 vertical wood windows.

Originally there were porches extending off both the east and west ends of the building; today only the east end porch survives. It is similar in design to the front porch although because of the slope of the site, a wooden stairway leads up to the east porch from both the north and south sides.

Side and rear elevations also feature original paired 4/4 vertical windows and several doors. Window and door casing throughout the building is very simple. Extending off the rear or south elevation is a detached barrel-roofed concrete vault connected to the building by a covered walkway.

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A five-panelled wood door at the north end of the vault provides access.

A single original brick chimney exists in the roof ridge of the building's east end. Also original to the roof are the triangular shaped louvered vents located on the north and south slopes of the center section. Protruding from the roof are a number of non-original air conditioning units.

In addition to accommodating office/store space, the building contains a large recreation room, probably the original "commodious reading room". On one wall is a large painted mural of Roosevelt Dam by C.M. Pogue dated August 15, 1915. The history of the mural is unknown.

Although the building has undergone some alterations (west end porch removal, removal of two entrances on primary facade, and interior remodelling), it still maintains a high degree of integrity. Today, the building is occupied by the PERA Club, the Salt River Project employees association.

THE ROOSEVELT CEMETERY (AZ U:8:174 ASM)

The Roosevelt Cemetery, which measures 215 ft by 250 ft and is enclosed by a split rail wood fence, is located on a northeast-facing slope on the west side of the community of Roosevelt and south of state highway 88. The cemetery was established at the turn of the century to serve as a final resting place for men, women, and children who died during the building of Roosevelt Dam. Dames and Moore were able to identify 74 probable graves here. Most of them are located in the west-central area of the cemetery. Virtually no evidence was found of graves in the northeast and southeast corners.

All of the graves identified were marked by rock cairns, which were likely placed at the time of burial to discourage carnivores from digging. Of the 74 graves located, four have carved headstones, and 13 have wooden markers. The remaining 57 graves are marked by simple white wooden crosses placed in the last decade by the Roosevelt Women's Club.

Most of the graves are oriented east-west, with the headstones to the west. There was apparently

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little attempt to align the graves in straight rows as many are at slight angles, or offset relative to neighboring graves.

Some of the wooden headboards appear to be original and are badly weathered. Most of these appear to be of the same style which consists of a simple wooden board 1 ft wide and 1 inch thick with semi-circular tops. One has a partially legible carved inscription that reads "Gustan O'B", Born Aug 18..., Died Jan 4 1908".

Other wooden headboards are in better condition, and appear to be replacements of the originals. These are made of 1-inch lumber bolted to pieces of metal, used as anchors. These markers are cut square at the top, and have been painted. Some had additions nailed on the side to accommodate an inscription. Two had legible inscriptions. One, identified as Moses Murphy, was probably the grave of an N.S. Murphy, one of contractor O'Rourke's laborers who died when a skip lowering rock and concrete broke and crushed him at the dam site. The other headboard may have been for one of his children who died a year earlier.

The finest headstones at Roosevelt Cemetery are four formal stone monuments (see photos #25 through 28). Only one of these was uncut and had no visible inscription. Two mark the deaths of men who died while working on the dam. John Loser, a German stonemason, was crushed between rocks and a derrick when the derrick collapsed on April 21, 1908. William Dillon was a British stonemason for the contractor O'Rourke. On March 21, 1910 he lost his footing, fell from the top of the dam, and drowned. A fourth monument marks the grave of M.M. Garcia who died September 7, 1908 of unknown causes. He was 54 years old at the time of his death, and was likely a construction laborer.

One of the first persons buried at the Roosevelt Cemetery was Jim Austin, a hobo who was bludgeoned to death in February 1906 after leaving the Gish saloon, a local bar. Other men buried in the cemetery were local construction workers who died as a result of accidents at work, or while traveling down the treacherous roads that served the town of Roosevelt. Due to the transient nature of the work force, little is known of those who lie buried here.

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Following completion of the dam, the cemetery fell into disuse and became overgrown with vegetation and disturbed by livestock. A restoration program spearheaded by the Roosevelt Women's Club was initiated in the 1970's. At that time, the cemetery was fenced, burial cairns were straightened up, and white, wooden crosses were made.

Today, the cemetery is again somewhat overgrown with shrubs and grasses. At the entrance is an interpretive marker installed by the Tonto National Forest, on whose property the cemetery is located.

COTTONWOOD CREEK APACHE CAMP (AZ:8:145 ASM)

The Cottonwood Creek Camp is an Apache residential site located on a long ridge extending south from State Route 88 just to the east of the present town of Roosevelt. Cottonwood Creek runs between the town and the camp.

Although the non-Apache camps at Roosevelt are reasonably well recorded in historical documents, maps, and photographs, the Apache camps are virtually invisible. A single photograph taken during a survey of the Tonto area in 1899 illustrates the traditional Apache wickiup. The locations of the latter are only barely visible today. Typically they are nothing more than minimally leveled areas, but in some cases partial rock rings mark wickiup locations. The open hearths used by the Apaches were not contained by rocks and were easily buried leaving virtually no surface indications. Artifacts are also typically sparse at Apache camps--the density and diversity of surface artifacts seems to be lower than on non-Apache sites.

Of the six Apache laborer camps recorded, the Cottonwood Creek retains the greatest integrity and still conveys the most information. Surface artifact collection at the other sites was extensive and in some cases complete. Two of the camps, the Diversion Dam Camp and Corral Camp, were located at the east end of Lake Roosevelt near the power canal diversion dam. The other three camps were located in the vicinity of Newtown, not far from the Cottonwood Creek Apache Camp. The small Newtown camp was outside the construction impact area and was not intensively studied. At

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the High Road Camp, fourteen features were identified and almost all surface artifacts were collected. At the Clay Quarry Camp, all artifacts were collected. Other camps undoubtedly existed near the Salt River, but many have probably been inundated by Lake Roosevelt, and others may yet lie unrecognized around the perimeter of the lake.

The Cottonwood Creek Apache Camp Site recorded by Dames & Moore was quite large, covering an area of approximately 700 ft by 1200 ft, or almost twenty acres. In fact, Cottonwood Creek may have been the largest Apache laborer camp during the construction period. It is possible that this camp was thought of as the Apache section of Newtown, now the present day Roosevelt.

More than 100 features were recorded at the site including 87 earthen platforms that were probable wickiup locations, 52 isolated artifacts, nine clusters of ritually "killed" artifacts, four other isolated artifacts that may have been "killed", eight glass scatters, two ceramic concentrations, five mixed trash scatters and two hearths.

Within the site documented by Dames & Moore was the realignment corridor for State Route 88. Located at the north edge of the Cottonwood Creek Camp, Dames & Moore confined their intensive feature recording and artifact collection, as well as limited excavation, to this area. Almost all subsurface features were hearths whose layer of ash was rarely more than one to two inches thick. Although the realignment destroyed some of the features (34 were recorded within a 500 ft wide right-of-way corridor), over two-thirds of the camp site remains intact and uncollected. All of the feature types, with the exception of a unique "rock feature" that was probably a windbreak, are still represented (see photos #29 through 31).

Based on the identification of 87 wickiups at the Cottonwood Creek Apache Camp, Dames & Moore estimated that as many as 19 extended families totalling anywhere between 240 to 400 individuals, may have occupied the site. They note that not all of the wickiups may have been simultaneously occupied. Certain wickiups or clusters of wickiups may have been abandoned after the death of a resident.

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Although broad dates could be assigned to only 80 of the 860 collected artifacts, Dames & Moore concluded that the evidence was compatible with the 1903-11 construction period. They suggest that the camp was established in 1908 when the filling of the reservoir forced the relocation of the original town of Roosevelt to "Newtown".

The presence of a number of what appear to be ritually killed artifacts at the site is an indicator of Apache occupation. Apache funerary practices involved burning the wickiups and killing personal possessions to dissuade the ghost of deceased individuals from returning. The largest cluster of ritually killed artifacts was located at the southern end of the site, immediately downslope from a cluster of wickiup platforms. The artifacts were collected. On a single platform, a saddle, a bridle bit, a cast-iron pot, and a wash basin had been ritually killed and very likely represented a wickiup where someone died. The other scattered killed artifacts probably reflected other deaths in the camp.

Other indicators that the Cottonwood Creek Camp was an Apache site include the presence of reused or altered artifacts. Many of the altered artifacts are large tin cans that were probably used to store water or other foods. One bucket had been converted into what appears to be a tulpai strainer. Additionally, the limited variety in the contents of the food containers, the small quantity of ceramic food preparation consumption artifacts and dominance of enamelware vessels, and the presence of a mana reinforce the identification of the camp as an Apache site. The Apache seemed to have cooked foods on open hearths rather than stoves.

Other artifacts recovered that yield information on the Apache lifestyle include a pony shoe, hoof pick and horseshoe nails; alcoholic beverage containers, and cartridges. The Apache may have owned or cared for horses at the camp; alcoholic beverages were consumed even though they were outlawed in the construction camps, and the Apaches may have hunted wild game such as ducks and deer.

One of the most interesting features found at the camp was a U-shaped rock structure within the right-of-way, and as a consequence, now destroyed. The wall, which probably served as a windbreak, was built of dry-laid, unshaped sandstone rocks stacked up to four courses high.

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Excavation of the interior of the feature yielded a concentration of burned artifacts (predominately metal tinklers, metal nail plats, and glass beads) that appear to have been decorations for an Apache garment, very likely a naihers dress. Except for the artifacts associated with this garment, few personal items were recovered at the site.

POWER CANAL (excerpted primarily from Archaeological Survey and Evaluation of Structural Components of the Roosevelt Power Canal)

The Power Canal was constructed between 1904-1906 for the purpose of diverting water to the powerplant at the Roosevelt dam site to provide electrical power for the construction of Roosevelt Dam. The canal, which is 19.23 miles long, begins at a diversion dam on the Salt River just below the State Highway 288 bridge and follows the southwest side of Roosevelt Lake to Roosevelt Dam. The canal is located on the Tonto National Forest (U.S. Bureau of Reclamation withdrawn).

When it was in operation, the canal had a reported capacity of 225-250 second feet of water. Much of the lower end of the canal near Roosevelt Dam was concrete; the rest was earth, although short segments, especially around certain components were also lined (see photo #32). The concrete-lined sections of the canal had a maximum bottom width of 10 ft while the unlined sections had a maximum bottom width of 15 feet (Project Data Book, p. 1092). The depth of the canal from the side berms to the bottom was typically 7 feet. The width of the top of the canal varied depending on the terrain and material through which it was excavated. .

The route of the canal cuts across relatively rugged terrain with numerous washes and minor drainages which carried run-off from the watershed south of the canal. The dissected terrain dictated the location and construction technology of the canal, and, in part at least, accounts for the numerous components found along its course.

In 1936-37 a new diversion dam was constructed at the site of the original dam (see photo #33). The design of the reconstructed dam was much the same as the original. Changes included extending the apron on the downstream side by 12 ft and lengthening the dam crest (Roosevelt Power Canal and Diversion Dam, HAER, p. 32). The present structure consists of an 8-foot high ogee spillway

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with an 18-inch thick reinforced concrete apron on the downstream side. The weir crest length is 500 ft (Project Data, p. 1091). Between 1937-38, the Power Canal was rehabilitated at which time work was done on the intake structure at the diversion dam, on two tunnels, and on the canal itself where about 2000 ft were lined with reinforced gunite. At the same time, the Bureau of Reclamation, under force account, constructed numerous components including wood flumes, wasteways, inflow chutes, and miscellaneous repairs. Following the rehabilitation, the canal was in service from 1938 through 1942 and again from 1946 through 1952 (The Historical Archaeology of Dam Construction Camps, p. 209). At that time, use of the canal appears to have been permanently discontinued and the headworks were sealed (see photos #34 and 35).

The canal was the subject of Historic American Engineering Record documentation conducted by David Introcaso in 1984. The previous year, Archaeological Research Services, Inc. was retained by the Salt River Project to conduct an intensive on-site survey of the Power Canal. The survey was prompted by a concern about potential public safety hazards associated with some of the Power Canal components.

The survey resulted in the identification of 182 individual components. These were lumped together into nine component types: tunnels (21); siphons (5); sluice gates (8); flumes (29); bridges (22); overflow weirs (13); cut and cover structures (5); culverts (68); and special, or one of a kind components, such as the diversion dam (11). The inflow chutes constructed by Reclamation in 1937 were not recorded primarily because they were considered to be very minor components of the canal.

Since that survey, a risk assessment of the canal was completed that included proposed safety measures (April 1994). Work completed includes: the demolition of two drainage flumes; the installation of warning signs at a number of locations, the grating and/or backfilling of some siphon/tunnel openings; and the backfilling of a stretch of unlined canal about 1.5 miles long. Surviving lengths are silted, overgrown with vegetation, and sometimes eroded. During periods of high water levels due to natural conditions or reservoir operations, stretches of the canal are inundated (the new maximum operating level of the reservoir is 2151 ft). In spite of this and the loss of a number of flumes and bridges, the original overall form of the canal, along with surviving

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associated features, remain intact and impressive.

The twenty-one tunnels recorded are concrete lined and with few exceptions (part of the intake tunnel at the diversion dam, the last two tunnels before the dam, and the penstock tunnel) have a uniform section, a flat bottom with an 8 ft width, and vertical sides with a maximum height from floor to the center of the arch of 7.5 ft. They range in length from 70 ft to 1695.4 ft.

There are two major siphons or pressure pipes on the canal, one at Pinto Creek, the other at Cottonwood Creek. The siphons were needed to transport canal water under washes that periodically carry a substantial flow of water. These two features are the most notable of the Power Canal for their unique steel-reinforced concrete jointless design. Prior to this, such pipes were made of iron or steel, or of wood staves bound with iron or steel rods. The Power Canal was also the first extensive use of reinforced concrete pipe to carry a large head of water under great pressure. It was reported at the time that these siphons would be the largest pipes of their kind in the world (Roosevelt Power Canal and Diversion Dam HAER, p.11).

The Pinto Creek siphon is 2400 ft in length making it the longest of the three. It is formed by two concrete and steel pipes, each 5 ft 3 in in diameter. The intake gates are located within a sediment basin on the east bank of Pinto Creek and the exit gates are situated on the west bank.
The Cottonwood Creek siphon consists of two reinforced concrete pipes each 540 ft long and 5 ft 3 in in diameter. This siphon also has intake and exit gates. At the time of the 1983 survey, at the exit gate only the top of the structure and remnants of the cast iron lift mechanism remained above grade. The date "January 9, 1928", and initials "HPY", were incised into the concrete.

A third siphon situated across Schoolhouse Wash dates prior to 1916. This siphon is a single pipe 100 ft in length without gates or other appurtenances, except a small overflow weir on the south side of the canal. The pipe is about 8 ft in diameter.

An additional two siphons were constructed when the canal was rehabilitated in 1937-38.

Sluice gates were located along the canal so that the entire flow of the canal could be discharged into

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the reservoir if needed. In the floor of the canal, in front of each of the gates, a concrete lined depression was constructed so that when the gates were opened water discharged from the depression. The depression acted as a sediment trap which was automatically flushed when the gates were opened. Eight sluice gate components were identified during the 1983 survey. Of these, one is slated for demolition.

The flumes along the canal were designed to carry runoff from relatively small drainages over the canal. Of the twenty-nine flumes identified through research, ARS was able to locate twenty-four of these during their fieldwork. Many, if not all, of the original flumes apparently were rebuilt during the 1937 rehabilitation project. The width of flumes ranges from 30 in to 90 in with 48 in being the more common width. Flume locations are generally characterized by the presence of two concrete and cobble supports, one on each berm of the canal and each with cobble and cement aprons. Spanning the canal and resting on the concrete and cobble supports were redwood flumes or troughs. In almost all cases, the wooden flumes are gone. The flumes also have cobble and cement wing walls at the entry and exit points.

Evidence of 19 of 22 documented bridges was located during the 1983 survey. Bridges over the canal were needed to allow vehicles to cross over it; other smaller bridges placed over the exit ends of flumes allowed the canal berm to be used as a roadway. Bridges range in width from 10 ft to 15 ft and from 3 ft to 33 ft in length. Most had formed concrete abutments and most, if not all, were spanned and floored with wooden timbers. The bridges are in various states of disrepair.

Another feature along the canal are overflow weirs. Their function was to provide an outlet for excess water flowing in the canal. All but one of the thirteen overflow weirs are located in proximity to other components such as sluice gates and flumes. The weirs range in length from 35 ft to 60 ft and, with one exception, are located on the outside berm of the canal. Each weir has a row of vertically standing I-beams across the crest of the spillway. The I-beams were placed in the weir to support flash boards. It appears that five of the weirs may date to the 1937 rehabilitation.

Five cut and cover structures, one of which has totally collapsed, are located along the canal. These reinforced concrete structures directed runoff over the canal, where flows would be too great for a

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culvert or flume to handle. The construction of a a cut and cover created a tunnel through which the canal flowed under the wash. The upper part of the structure acted like a flume; it had side walls to channel runoff over the canal and a sloping ramp or spillway on the down slope side to carry water away from it.

The most numerous structures along the Power Canal are culverts designed to carry runoff under the canal. These are of different sizes and are either poured concrete arch or double arch culverts or pipe culverts.

Dames & Moore revisited the Power Canal during their 1986 historical archaeological studies. Their investigations along the canal focused on both Anglo and Apache sites. They identified recorded, and collected artifacts at seven sites, including two Apache camps (Diversion Dam and Corral Camp) previously discussed. The remaining five sites have not been included in the nomination due to a lack of integrity and ability to convey any significant information. One of the five sites was the Cottonwood Creek Ditchrider's House, a standing structure that appeared to date from the 1930's. The house was in very poor condition and has since been demolished. The Dam Tender's Residence/Construction Camp site at the diversion dam had been extensively bulldozed and most of the structural remains were cleared away. The archaeological record of the site was badly mixed and not particularly informative. The Grapevine Construction Camp was identified archaeologically as a deposit of construction and domestic trash. The site appears to have been a camp used by crew constructing the nearby canal tunnel. With a few exceptions, the entire site was collected. The Windy Hill Trash Site was a small trash scatter located just north of the Power Canal in the vicinity of Windy Hill. The site was a surface phenomena and has been entirely collected. The Sandbox Residence site consisted of fourteen features, four related to residences (presumed to date from the 1930's), six associated with the power canal, and the rest identified as "other features" (see photos #36 and 37). The remaining recorded features associated with the power canal (bridge abutments, concrete steps, cobble and concrete supports, a concrete slab) are included within this nomination as part of the power canal (location 4 on the map of the power canal). The other features comprising the sandbox site are not included due to destruction of some features as a result of later road building, or to a presumed construction date outside the period of significance. Actually, the major

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features of the sandbox itself are the overflow weir and sluice gate--both still extant--which were not assigned feature numbers by Dames & Moore.

Significance

I. Introduction

The resources included in the Theodore Roosevelt Dam National Register District are all significant for their association with one of the first major federally sponsored Reclamation projects in the West. The Salt River Project, of which Roosevelt Dam is the key structure, was among the first five federal reclamation projects authorized under the Reclamation or Newlands Act of 1902. The Act created the United States Reclamation Service whose purpose was to design and construct irrigation projects to aid the settlement of the arid west. Previous efforts by individuals and private irrigation companies were inadequate and often unsuccessful. With the creation of the Reclamation Service, the lead role of the federal government in developing large-scale irrigation projects was firmly established.

Roosevelt Dam, as originally conceived and built, was to be a symbol of success and a showpiece for the newly created water development agency. Started in 1906 and completed in 1911, the dam across the Salt River was an outstanding engineering achievement. The 280-foot-high structure was distinguished as the highest stone masonry dam in the world. The lake created behind the dam, known as Lake Roosevelt, contained more than a million acre-feet of water and was the world's largest artificial lake.

Completed at a cost of $10 million, the primary function of Roosevelt Dam was to provide water storage for the Salt River irrigation project and flood control for the Salt River Valley. The dam contributed more than any other dam in Arizona to the settlement of Central Arizona and to the development of large scale irrigation agriculture there.

A secondary purpose of the dam was to generate a moderate amount of hydroelectric power. Power-related features associated with the construction of Roosevelt Dam include the power canal, power house and transformer house. The Power Canal played a major role in the production of power needed to construct the dam itself by delivering water to first a temporary and then the permanent

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power plant. Building the power canal across the remote rugged terrain was a challenge to Reclamation engineers and resulted in the development of state-of-the-art technology. The power generating facilities at the dam, beginning with the 1906 temporary plant and followed shortly thereafter by the permanent power plant and transformer house, represent the first ever built by Reclamation. They have also been vital to the evolution and ever-expanding power system of the Salt River Project.

The other resources included in this nomination are all directly associated with the construction of the dam and contribute information and understanding of that period. The five construction zone historic archaeological sites (Cableway, Sand Plant, Powderhouse and Water Tank, Cement Mill, Clay Quarry) are remnants of some of the major construction facilities that were constructed in very rugged and challenging terrain. They provide data on the configuration, relationship and function of components that were vital to the successful completion of the dam. Although only partially intact, the five sites provide a glimpse at the scale and complexity of the effort required to build a dam under primitive conditions. The cemetery, which was established specifically for those who died during the construction of the dam, contributes to the district for its historical associations.

As possibly the largest of the Apache laborer camps connected with the dam construction period, the Cottonwood Creek Camp represents an important aspect of the construction history of the dam, namely the major contribution of Native American labor to the project. While information on non-Apache camps exists in the historical record, virtually nothing has been found on the Apache camps. The discovery of Apache labor camps was among the biggest surprises of Dames and Moore's study because they had not been previously recognized. The on-the-ground evidence is therefore extremely important in providing clues and data on an important transistional era in Apache history. Although the Apache were undergoing cultural assimilation, they still maintained aspects of their own traditions. The archaeological record at Lake Roosevelt reflects a unique blend of Euro-American and Apache culture. The investigations by Dames & Moore provided an opportunity to investigate how the Roosevelt Dam project affected Apache lifeways. The artifacts and features found at the Cottonwood Creek Camp are valuable in helping to define characteristics of Apache camps of the time and in better understanding their lifestyle. The archaeological data clearly indicates that the

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Apache working on the Roosevelt project maintained at least some of their traditional culture. They continued to reside in traditional wickiups, and the ritually killed artifacts imply that Apache mortuary practices were intact. More subtle than the presence of characteristic Apache artifacts is the relatively low frequency of Euro-American artifacts, including a low density of tin cans and a narrow range of food can types. Other typical Euro-American artifacts, such as household items, also were sparse at Cottonwood Creek Camp.

The last contributing resource, the Administration Building, is important for its role as the Reclamation headquarters during the construction of the dam. It's significance is augmented by the fact that it is the only building to survive from the construction period of the dam with the exception of the power plant and transformer house.

II. Historical Background (excerpted primarily from Theodore Roosevelt Dam, HAER)

As early as 1889, the narrow canyon below the confluence of the Salt River and Tonto Creek had been identified as a promising dam site by Maricopa County representatives who wanted to convince federal legislators of the need for water storage in the Salt River Valley. Despite the efforts of the county, little federal interest in the Tonto Basin site was shown until 1901 when the Geological Survey conducted studies there in response to lobbying efforts by influential irrigation advocates, Benjamin Fowler and George Maxwell. Leading the investigations was Arthur Powell Davis, a nephew of John Wesley Powell who would later become head of the Reclamation Service. Davis' report was published in 1903 under the title "Water Storage on Salt River, Arizona". In the document, Davis provided fairly complete plans for a dam and power facility at what later became known as the Roosevelt site.

The formal submittal of Davis's report to Charles Wolcott, Director of the Geological Survey in June 1902, coincided with the passage of the Newlands or Reclamation Act of 1902. Among the first five projects advocated for construction by the Geological Survey and approved by Interior Secretary Ethen A. Hitchcock was the Salt River Project. Final plans for construction of the dam, published in the Third Annual Report of the Reclamation Service (1905) adhered closely to those outlined in Davis's earlier report. These plans called for a curved masonry gravity structure with two large

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spillways-one at each end of the dam-to carry away excess floodwaters and prevent overtopping of the structures.

By 1903, Reclamation Service engineers were conducting initial work in preparation of the actual dam construction. Building the monumental structure across the Salt River in this inaccessible spot posed enormous challenges. The dam site was linked to the capital city of Phoenix some 60 miles away only by primitive trails through the Salt River Canyon. The site was closer to Globe, a mining town of a few thousand residents located 25 (40) miles southeast of the dam site. One of the first tasks was to develop a transportation route to haul supplies in to the remote site. Reclamation opted for a road between Mesa and the dam, crossing some extremely rugged terrain. Called by one source "almost as great a monument to Hill's engineering ability as the Roosevelt Dam itself" the 62 mile Mesa-Roosevelt Road was started in 1903 and completed in March 1905. Once in service, thousands of tons of material and equipment were transported up the new route called the Apache Trail. (Raising Arizona's Dams p.32, Jackson p. 58-59)

In addition to the road, an array of support facilities were needed to bring the dam project to successful completion. A diversion dam and power canal brought water to the dam site to generate hydroelectric power during construction; quarries provided limestone, sandstone, and clay needed to produce cement and concrete; other quarries provided the great stone blocks for the masonry dam itself; plants near the dam produced sand and cement; logging and milling camps in the Sierra Ancha Mountains to the east of the Tonto Basin supplied lumber; and telephone lines connected the dam site to the head of the power canal. Work on these ancillary facilities began in 1903.

Already in his 1902 study, Davis discussed the desirability of utilizing water power in the construction of the dam due to the excessive cost of hauling in other types of fuel over great distances. The method developed for producing hydropower involved the construction of a low diversion dam on the Salt River about nineteen miles upstream from the Roosevelt dam site. Water was diverted there into a canal which initially fed into a temporary power plant at the dam site, generating electricity to power the construction.

Significance

Proposals for construction of the Power Canal were advertised on 31 October 1903. In March 1904 two contracts were awarded, one to Robert Scherer and Company of Los Angeles for canal excavation and the other to John Tuttle of San Francisco for the tunnel work. Construction under both contracts began in April 1904. Work on the tunnels was completed by Tuttle in August 1905 and the open canal was finished by Scherer in November 1905. The final cost of the power canal was ten times the original estimate as it neared completion in 1905.

Building the power canal across remote and rugged terrain proved to be more difficult than anticipated. Reclamation engineers responded to the challenge by developing state-of-the art technology including a "concrete alligator" to pour jointless concrete pipes for inverted siphons to carry the power canal beneath Pinto, Schoolhouse, and Cottonwood creeks. (Raising Arizona's Dams p. 33) Pinto Creek and Cottonwood Creek siphons were built by Reclamation Service force account.

At the dam site, water in the power canal entered a seven-foot diameter, steel-lined penstock initially connected to the temporary power plant. The 620-foot long penstock, which was constructed by government force account, was cut through solid rock to reach the plant. Originally, the temporary power plant was to be built about one-half mile upstream from the damsite inside the reservoir and construction of a permanent plant would be delayed until later. By the end of 1904, however, project engineers G.Y. Wisner, W.H. Sanders, O.H. Ensign, and L.C. Hill, had opted for a temporary plant just south and below the damsite in a shallow cave excavated in the canyon wall. This would allow the excavated area and the power canal penstock to be incorporated into a permanent plant at the same site.

Excavation for the temporary power plant was started in January 1905, the machinery was installed in the fall, and work was completed in March 1906. By June of 1906, the plant was operating twenty-four hours a day. For the next three years, until the permanent power house was completed, the temporary facility provided electricity for the operation of the cement mill, for equipment used in the construction of the dam, and for lighting the construction camp.

Along with the power canal and temporary power plant, the most important component of the

Significance

Roosevelt construction plant was the cement mill. Planning for this facility began with Davis's initial 1902 report in which he foresaw that the expense of transporting cement to the Tonto Basin might be too great to allow for economical construction of a large masonry dam. At the time cement had to be hauled in from as far away as southern California, Denver, or San Francisco. Davis explored the use of raw materials in the vicinity of the damsite for making cement locally.

Based on the tests conducted, the Reclamation Service concluded that the necessary materials were available to manufacture cement at Roosevelt. They awarded the initial contracts for building and equipping a cement mill late in 1903. This raised objections from cement manufacturers who claimed that the government was competing with free enterprise. In response to the complaints, the Reclamation Service solicited bids for delivery of cement to Roosevelt. The low bid of $4.81 per barrel submitted by the Portland Cement Company of Denver was quite a bit less than the $9 per barrel Reclamation estimate. It was also substanially more than $2.00 per barrel, the estimated cost of manufacturing the cement locally. The bids were rejected by the Interior Department and in March 1904 the Reclamation Service was authorized to award contracts for the construction and equipping of the cement mill.

A year later the cement mill was completed, the first ever built in the Arizona Territory. It was an impressive, multi-level structure. Operation of the mill and production of cement were beset by a number of difficulties that often slowed or halted production. Shortly after the mill opened, it became apparent that the cement grinding took much longer than had been anticipated. This lost about 10 days of production every month. The problem of the slow grinding rate was solved by the installation of a second tube mill (Historical Archaeology of Dam Construction Camps in Central Arizona. p.64).

Manufacturing cement requires high, steady temperatures, obtainable only by using good quality fuel. Oil was the fuel of choice for heating the kilns. A contract was awarded to C.R. Eager and Company of Los Angeles, low bidder at $3.48 per barrel. Delays in delivering the oil to the remote dam site caused major problems by slowing down cement mill operations. Other than the kilns, the rest of the plant ran on electric power, which until April 1906 was provided by a steam plant and after that by the power canal. When the cement mill was finally up and running at capacity, the

Significance

cement storage bins would quickly fill up causing periodic shut downs.

Limestone needed to make the cement was quarried from a site just upslope and to the east of the mill. A small rail line connected the quarry to the mill. Another ingredient, clay, was quarried from the clay quarry located approximately a mile to the east. Clay was initially transported from the quarry to clay storage bins north of the mill by horse-drawn wagons. At some unknown date, a small railway was constructed adjacent to the power canal to carry the clay from the quarry to the bins. From the storage bins, a tramway carried the clay to the cement mill.

A 1700-foot-long Leschen aerial tramway suspended 275 feet above the river connected the cement mill to the mixing plant located on the hillside above the southern end of the dam. About halfway between the mill and mixing plant was the sand crushing plant. Both limestone and sandstone were crushed to produce a fine sand needed to produce mortar and cement. The crusher was electrically-operated. When the Granite Diversion Dam was completed in 1908, a crusher was moved from there and installed at the Roosevelt crushing plant to increase its capacity. Next to the crushing plant, a storage bin with a 200-cubic-yard capacity was built.(Historical Archaeology.. p. 45)

Both the sand and cement needed to make mortar were transported directly to the mixing plant via the Leschen tramway. Concrete requires another ingredient, crushed rock or aggregate, which came from a small quarry adjacent to the mixing plant. Within the mixing plant, there were three storage bins, one each for cement, sand and aggregate.

It was three years from the start of the project in 1903 before the first stone block of the dam was placed. This occurred on September 20, 1906. The contract for the dam's construction had been awarded on April 8, 1905 to the low bidder, John M. O'Rourke and Company of Galveston, Texas. The price was $1,147,600 and they anticipated completing the dam within two years. As it turned out, this time frame proved impossible to meet due to continual delays that plagued the project.

Initial steps in the dam construction involved clearing the foundation so that the masonry could be placed directly on solid bedrock. In order to accomplish this, water had to be diverted around the

Significance

site. Temporary upstream and downstream cofferdams and a timber flume intended to channel water through the damsite were designed for this purpose. Heavy flooding destroyed or damaged these features on several occassions, severely disrupting O'Rourkes progress. After serious flooding in November 1905 destroyed the upsteam cofferdam and timber flume, O'Rourke and the Reclamation Service agreed that reconstructing the flume would be useless; they decided instead to use the sluicing tunnel already drilled through the south canyon wall as the exclusive means of diverting water around the damsite.

On June 13, 1906, water began to flow through the sluicing tunnel and the job of clearing the foundation could begin in earnest. Once all dirt and loose rock had been removed from the foundation, the next step was the placement of masonry. The contractor had opened a quarry above the damsite on the north side of the canyon to quarry the sandstone blocks and smaller spalls. Large stones blasted from the quarry were further reduced in size using a non-explosive method known as "plug and feather". This method was used to avoid any explosive shocks that could damage the rock.

Once quarried, stone was transported to the dam by two 1200-foot-long Lidgerwood cableways that extended from one side of the canyon to the other, 350 above low water. These cableways supported buckets that could be moved horizontally and lifted vertically. With a capacity of ten tons, they had the ability to haul extremely massive stones. The buckets also transported large quantities of mortar and concrete from the mixing plant to the dam. The mortar and concrete were delivered to the dam at completely different times than the large stones. The latter were carried at night to the general location where they would be laid up the next day. During daytime, the cableways were used to carry mortar and concrete directly to the particular site where masonry was in the process of being placed.

The actual process of building the dam was quite straightforward. Stone delivered by the cableways was placed near its final position by one of five wooden derricks. Then the cableways delivered a batch of mortar and dumped it where the stone was to be embedded. Shortly after, the stone was lowered slowly onto the mortar and tamped down lighly to eliminate any voids or air pockets. In the

Significance

vertical spaces between the stones, O'Rourke's crew placed concrete and filled the large spaces with spalls. The masonry was then kept wet for several days to make sure that it set properly without prematurely drying. After this, the stones and concrete were ready to form the base for another stepped layer of masonry.

By June 1909, the dam had reached a height of 170 feet at the south end and 110 feet at the north. It was almost 75% complete, by volume. That same month, the first two of six planned generating units in the permanent power plant were put in operation. A third unit was placed in service in August 1909 after which the temporary power unit was dismantled. The transformer house was completed at the same time. Both the power plant and transformer house were built by government employees.

The following June, the Reclamation Service declared the dam to be "practically complete" except for a small amount of work remaining to be done on the parapet walls, the spillways, and the reinforced concrete bridges over the spillways.

In the summer of 1910, after producing 338,000 barrels of cement, the cement mill was shut down. Cement from the mill had not only gone into Roosevelt Dam, but also the power canal and the Granite Reef Diversion Dam. In the end, the actual cost of cement from the mill was $3.14 per barrel, which was considerably higher than estimated but still a considerable savings over commercial estimates. With the completion of Roosevelt Dam, the Reclamation Service decided to dismantle the cement mill. The kilns and grinding machinery were sold to a group of men from Mesa, Arizona in July of 1910 for $10,500. By the end of the year the last of the equipment was being hauled to the Salt River Valley where the Arizona Portland Cement Company was intending to use it in a new cement mill north of Tempe (Historical Archaeology ..p. 64).

When the final stone was laid in Roosevelt Dam on February 5, 1911, the dam contained a total of 344,000 cubic yards of masonry. A month later, amid great fanfare, the dam was dedicated.

A project the size of Roosevelt Dam obviously required an extensive work force of both skilled and

Significance

unskilled laborers. Although the total population at the damsite during peak periods of construction is not known with certainty, it is estimated to be at upwards of 2,000 people. (Raising Arizona's Dams. p. 40) An entirely new community was needed to support this population.

The first government camp, consisting of tent houses, was established at Livingston a ranch three miles east of Pinto Creek and near the upper end of the power canal. The camp was later inundated by Lake Roosevelt. In 1905, as the focus of construction shifted from the diversion dam and upper end of the power canal to the Roosevelt damsite, the work force was relocated.

The camp at the Roosevelt Dam construction site actually consisted of three separate areas. On the north side of the Salt River, almost 1000 feet upstream from the dam proper, was the contractor's camp established in 1905. "O'Rourke's Camp", as it was known, consisted mainly of tent houses. Also at the site were a wooden barracks and a large, two-story frame administration building that housed the supervisors, workers and some family members of the project's prime contractor. All traces of this community were destroyed with the realignment of State Route 188. Data recovery was conducted at the site by Arizona State University in the early 1980's.

On a high bluff more than a half mile east of the dam the Reclamation Service established its on-site headquarters and residential area for staff and supervisors. Called Government Hill or Roosevelt-on-the-Hill, this complex of buildings and structures was located high enough above the basin floor to escape inundation when the reservoir was full. By June 1904, construction of an office building and housing for Reclamation staff was in progress. In June 1905, when the government camp was largely completed, it included the government administration building, a large dining hall, an ice plant, a hospital or clinic, a tennis court and staff housing. Senior engineers and their families lived in frame cottages grouped around the office building. The comfortable homes were equipped with electricity and indoor plumbing. The bachelor engineers lived in tent houses to the west of Government Hill in an area called the "Bullpen". All of the structures at government hill were later razed, with the exception of the one story administration building now used as a recreational hall by Salt River Personnel.

Significance

The third community established was that identified as Roosevelt. It was located on the south side of the Salt River below Government Hill. A small commercial district was formed there to serve the large number of workers at the site. Lots were leased by the government to business owners at no cost. By January 1904, Roosevelt had an array of shops and services including a post office, three general stores, a drug store, several restaurants and lodging houses, and two doctors. By spring the town had grown to include several more businesses as well as about sixty tent houses and a dozen frame residences. Beginning in June 1908, relocation of the town became necessary as the reservoir began to fill and inundation became a threat. A new site was selected on the south side of the river about a mile east of Government Hill. Known as Newtown, this settlement was dismantled after completion of the dam.

In addition to the three formal camps, separate residential areas were occupied by Apache laborers who worked on the Roosevelt Dam construction project. Maintaining an adequate labor force was a continual problem for the Reclamation Service due to the harsh conditions at the site and Apaches from the San Carlos Apache reservation were encouraged to join the work crews. As many as 1500 Apaches worked or lived at Roosevelt during the construction years. Most of them were employed in quarrying, road, canal, and power line construction. Others worked in the cement mill, power house and on the dam. The Apache laborers and their families lived primarily in traditional wickiups. Six Apache camps were identified during the Dames & Moore historic archaeological survey. (Historical Archaeology p. 260)

After construction activity peaked, the work force slowly began to dwindle and the camps emptied out. In 1910, there were only about 645 people living in the Roosevelt area. After the dam was completed and dedicated in 1911, the population dropped to 250. Government Hill continued to be occupied by operation and maintenance employees and Apaches stayed in the Lake Roosevelt area for a number of years but most of the construction facilities and camps associated with Reclamation's first major construction project were dismantled and moved or sold.

Major Bibliographical References

Archaeological Research Services, Inc. Archaeological Survey and Evaluation of Structural Component of the Roosevelt Power Canal. Prepared by James E. Ayres for Salt River Project, Phoenix, Arizona. June 1983.

Dames & Moore. The Historical Archaeology of Dam Construction Camps in Central Arizona, Volume 2A: Sites in the Roosevelt Dam Area. Prepared by James E. Ayres et al for U.S. Bureau of Reclamation. 1994.

Historic American Engineering Record. Theodore Roosevelt Dam. HAER No. AZ-6. Prepared by Donald C. Jackson. June 1992.

Historic American Engineering Record. The Roosevelt Power Canal and Diversion Dam. HAER No. AZ-4. Prepared by David Introcaso. 1984.

Historic American Engineering Record. Theodore Roosevelt Dam, Power Plant. HAER No. AZ-6-A. Prepared by Christine Pfaff, Bureau of Reclamation. June 1996.

Rogge, A.E and others. Raising Arizona's Dams. Tucson & London: University of Arizona Press. 1995.

Hepler, Tom and Daniel Drake. "Raising Roosevelt Dam: Protection Against Floods, Earthquakes." Hydro Review. July 1995: p. 40-48.

U.S. Department of Interior. Water and Power Resources Service. Project Data. Denver: U.S. Government Printing Office, 1981.

U.S. Department of Interior. U.S. Reclamation Service. Salt River Project, Project Histories, 1910-1917. National Archives, Rocky Mountain Region, RG 115.

Geographical Data

Verbal Boundary Description

The boundary for the dam complex includes Theodore Roosevelt Dam, the Powerplant and Transformer House as shown on Figure 2. The complex falls within, but is not defined by a rectangle with the following UTM coordinates:

Point 1	Zone 12	485010 Easting	3725680 Northing
Point 2	Zone 12	485210 Easting	3725480 Northing
Point 3	Zone 12	484900 Easting	3725280 Northing
Point 4	Zone 12	484500 Easting	3725700 Northing

Acreage of the rectangle is approximately 20.6.

The boundaries for the discontiguous component sites within the district are outlined on the various attached site maps. The UTMs and approximate acreage are as follows.

Cableway Site	Zone 12	485240 Easting	3725400 Northing	1 acre
Sand Plant Site	Zone 12	485360 Easting	3725580 Northing	1 acre
Powderhouse/ Water Tank Site	Zone 12	485420 Easting	3725420 Northing	1.25acres
Cement Mill Site	Zone 12	485640 Easting	3725700 Northing	.62 acres
*Clay Quarry	Zone 12	486700 Easting	3725200 Northing	3 acres
Administration Building	Zone 12	486140 Easting	3725900 Northing	1.25 acres
*Roosevelt Cemetery	Zone 12	487380 Easting	3724960 Northing	1.25 acres
*Cottonwood Creek Apache Camp	Zone 12	487980 Easting	3724760 Northing	7 acres

The boundary for the power canal* is defined as a linear corridor 39 feet wide centered on the canal prism, and running the full 19.23 mile length of the resource from a starting point at the south end of the Roosevelt Power Canal Diversion Dam to termination at the abandoned 7' power canal penstock at Roosevelt Dam.

Geographical Data

Starting and ending UTM coordinates for the canal are as follows:

Diversion Dam	Zone 12	506100 Easting	3720100 Northing
Roosevelt Dam	Zone 12	485180 Easting	3725480 Northing

Acreage for the canal is approximately 91 acres.
The area includes all associated canal features as outlined in the inventory and indicated on the attached site map (figure 13)

*indicates properties on the Tonto National Forest. The power canal is U.S. Bureau of Reclamation withdrawn land on the Tonto National Forest.

MAPS

LIST OF MAPS

U.S.G.S 7.5' Quad Maps

Theodore Roosevelt Dam, Ariz., 1964

Windy Hill, Ariz. 1964, PI 1978

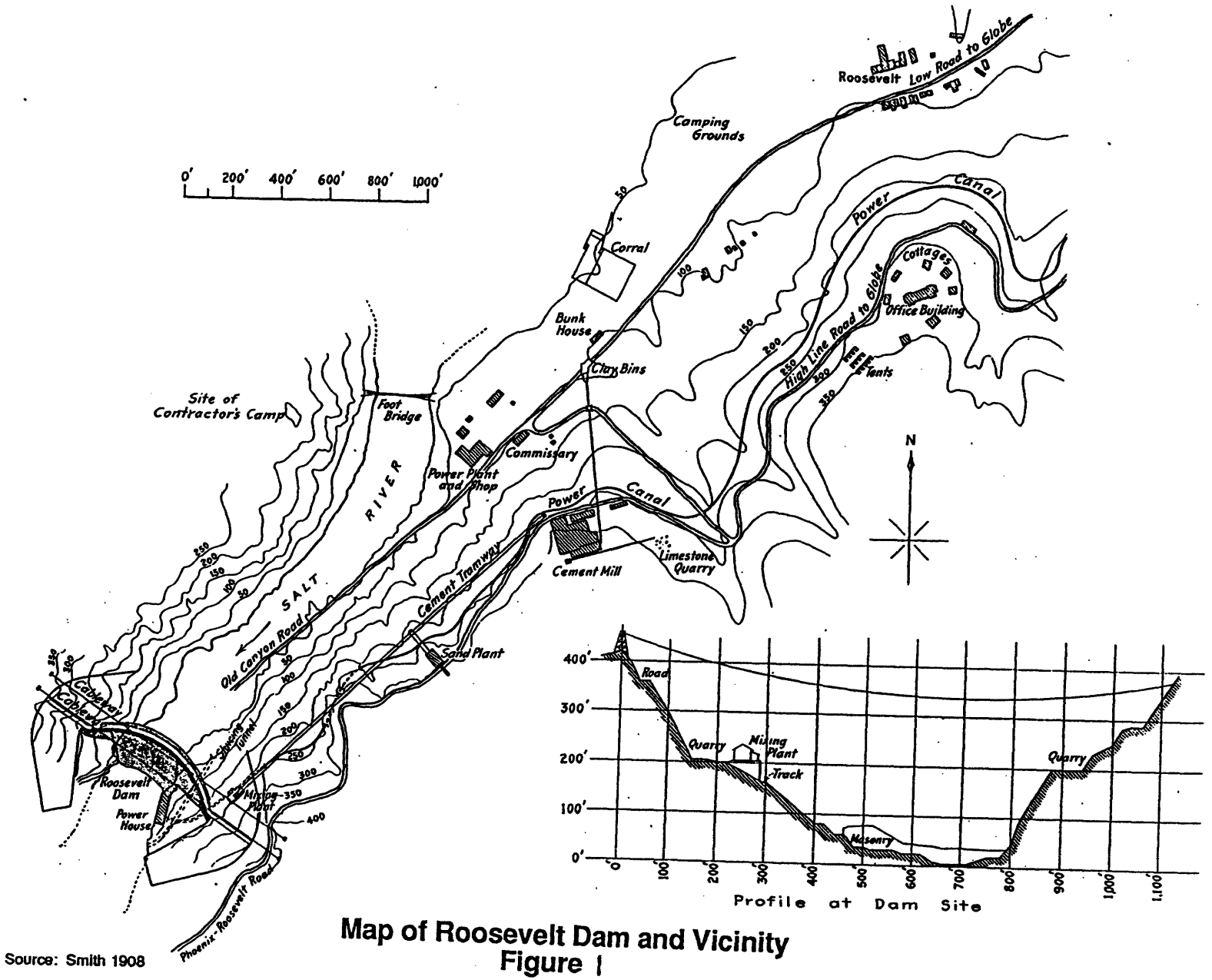
Meddler Wash, Arizona, Provisional Edition 1986

Salt River Peak, Arizona 1986

Sources:

Maps citing Dames & Moore as the source are located in The Historical Archaeology of Dam Construction Camps in Central Arizona, Volume 2A: Sites in the Roosevelt Dam Area. Prepared for U.S. Bureau of Reclamation, 1994.

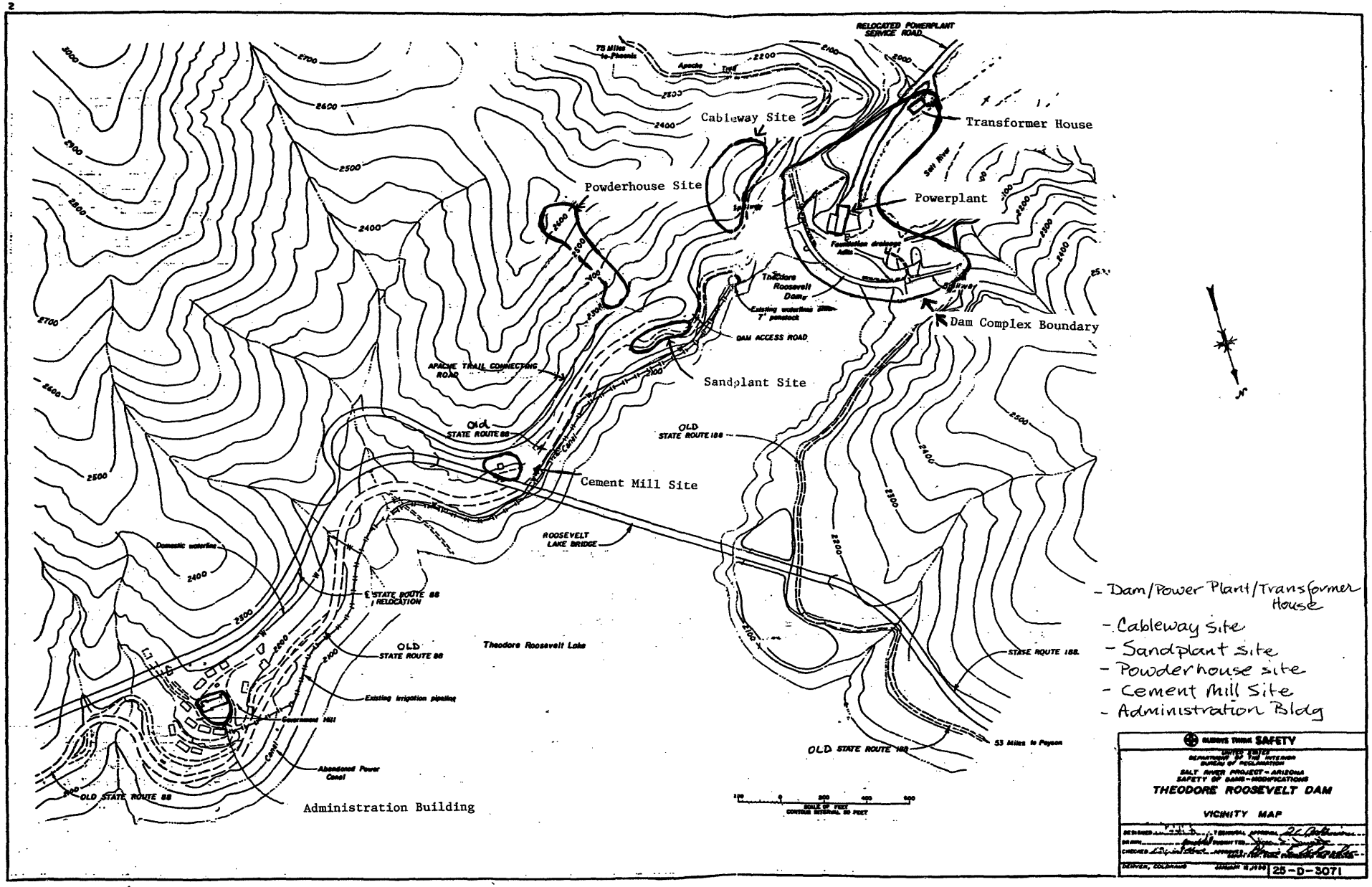
The Power Canal map is from Ayres, James. Archaeological Survey and Evaluation of Structural Components of the Roosevelt Power Canal. Prepared for Salt River Project, June 1983.



Source: Smith 1908

Map of Roosevelt Dam and Vicinity
Figure 1

Source: Dames & Moore



- Dam/Power Plant/Transformer House
- Cableway Site
- Sandplant Site
- Powderhouse site
- Cement Mill Site
- Administration Bldg

GIVING THEM SAFETY

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF RECLAMATION

SALT RIVER PROJECT - ARIZONA SAFETY OF DAMS - MODIFICATIONS

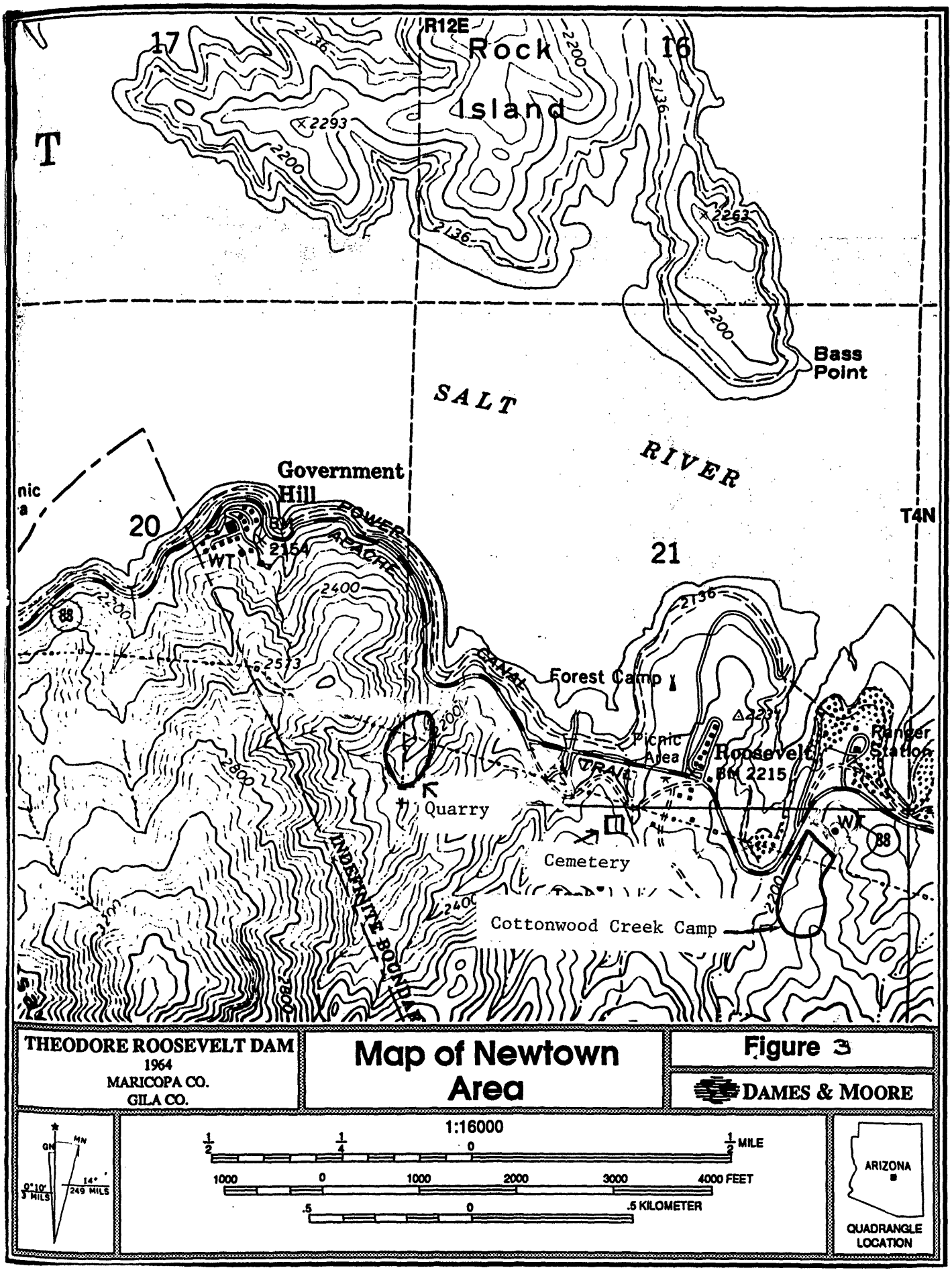
THEODORE ROOSEVELT DAM

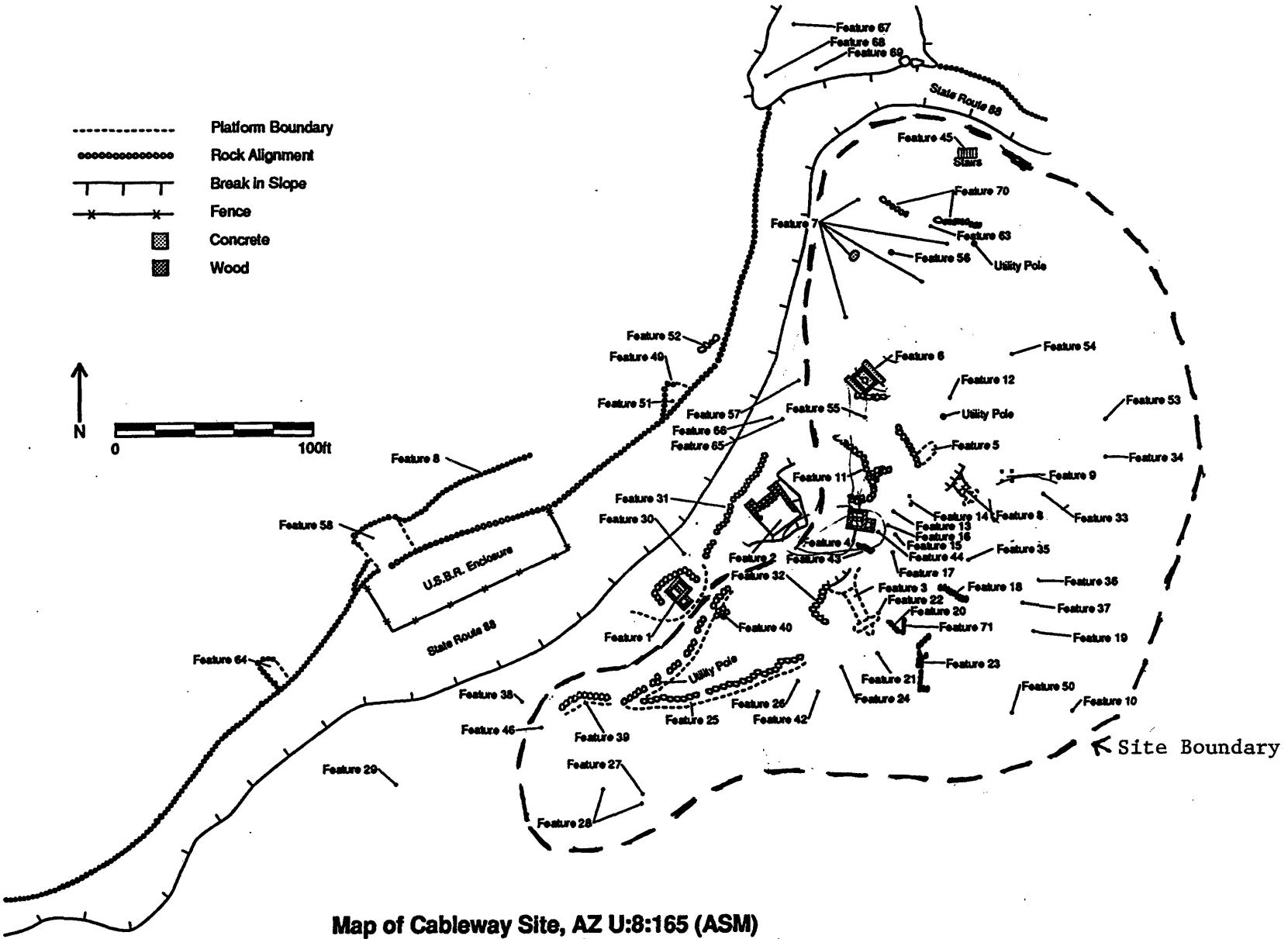
VICINITY MAP

DESIGNED ... TECHNICAL APPROVAL ...
DRAWN ... PROJECT ENGR. ...
CHECKED ... APPROVED ...

DENVER, COLORADO JANUARY 8, 1979 | 25-D-3071

Figure 2

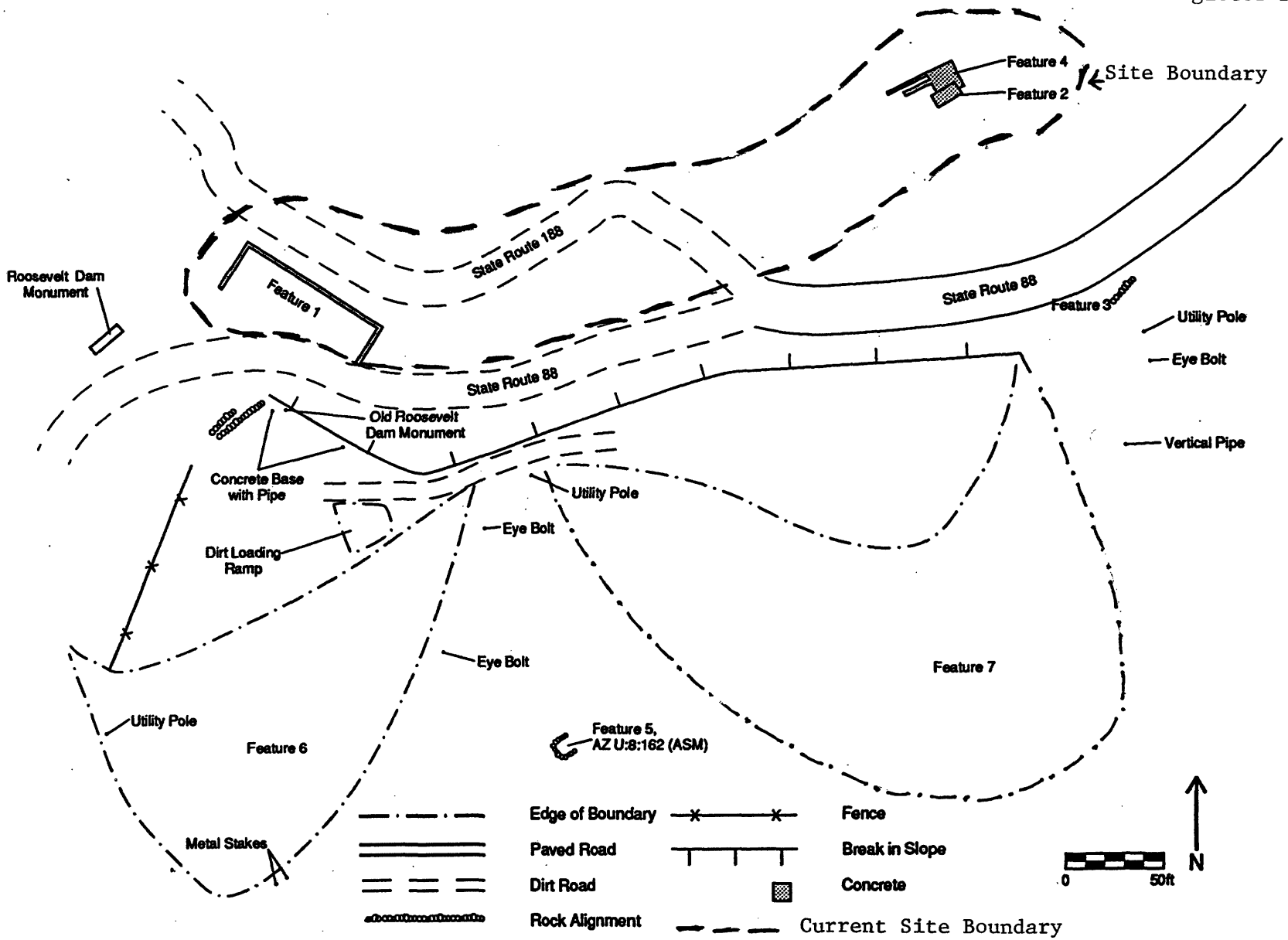

R12E
17
16
Rock
Island
T
2293
2200
2136
2263
Bass
Point
SALT
RIVER
T4N
Government
Hill
20
21
BM
2154
WT
POWER
APACHE
2400
2513
88
CANAL
Forest Camp
Picnic
Area
Roosevelt
BM 2215
Ranger
Station
TRAIL
Quarry
Cemetery
Cottonwood Creek Camp
INDEFINITE BOUNDARY
2800
2600
2200
THEODORE ROOSEVELT DAM
1964
MARICOPA CO.
GILA CO.
Map of Newtown
Area
Figure 3
DAMES & MOORE
1:16000
1/2 1/4 0 1/2 MILE
1000 0 1000 2000 3000 4000 FEET
.5 0 .5 KILOMETER
GN MN
0°10'
3 MILS
14°
249 MILS
ARIZONA
QUADRANGLE
LOCATION



Map of Cableway Site, AZ U:8:165 (ASM)
Figure 4

Source: Dames & Moore

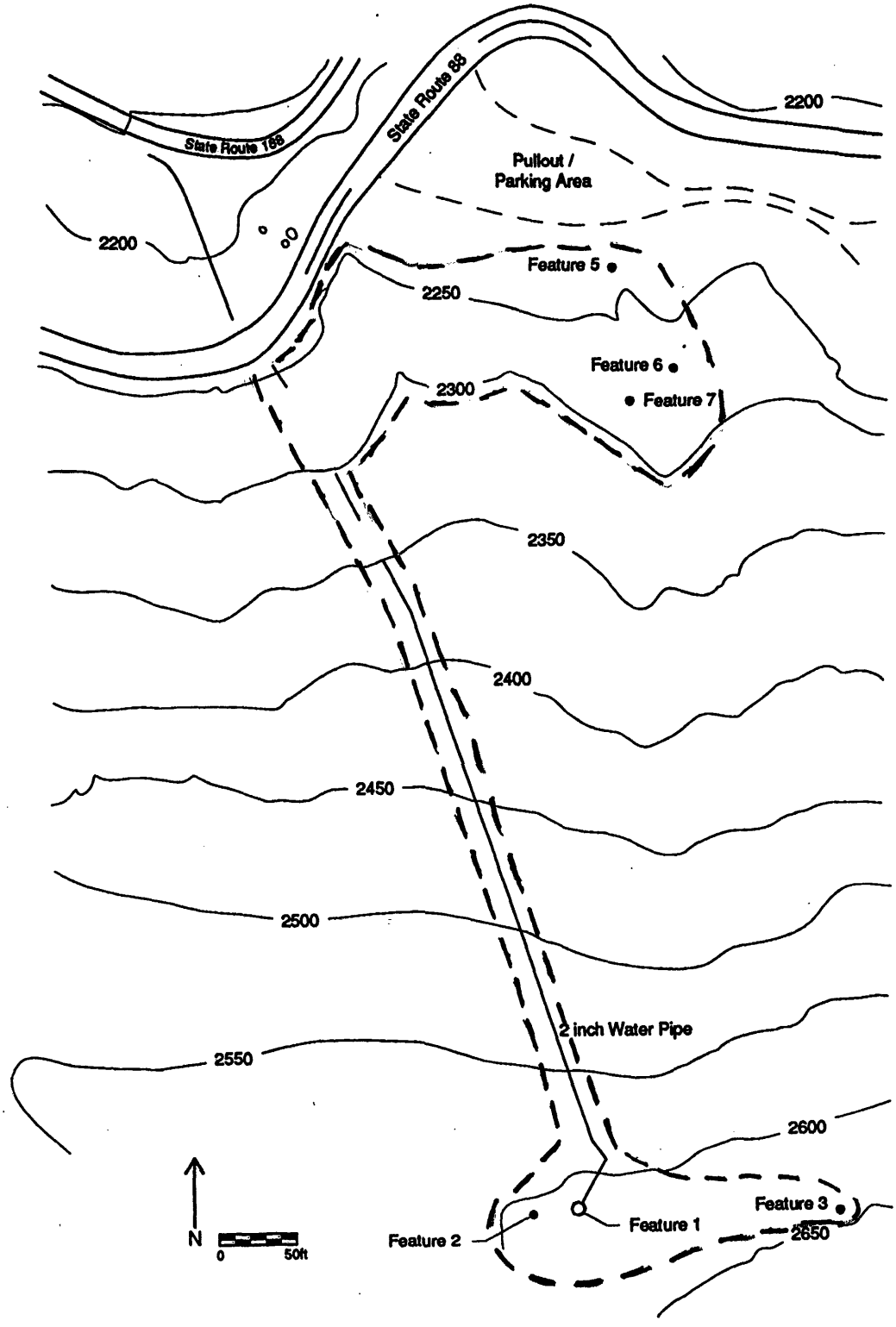
Site Boundary



Site Map of Sand Plant, AZ U:8:166 (ASM)

Figure 5

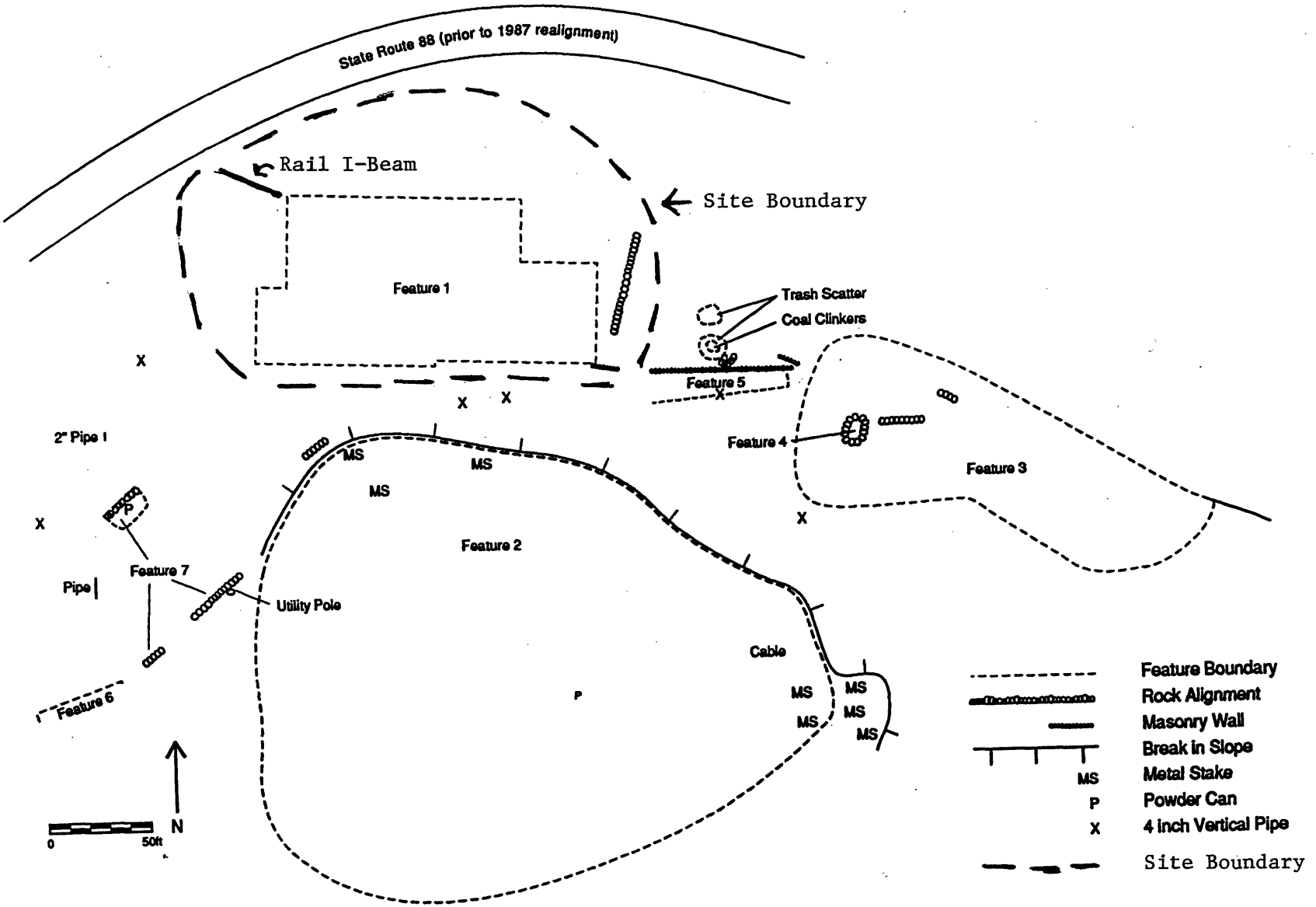
Source: Dames & Moore



Site Map of the Powderhouse and Water Tank Site, AZ U:8:162 (ASM)
Figure 6

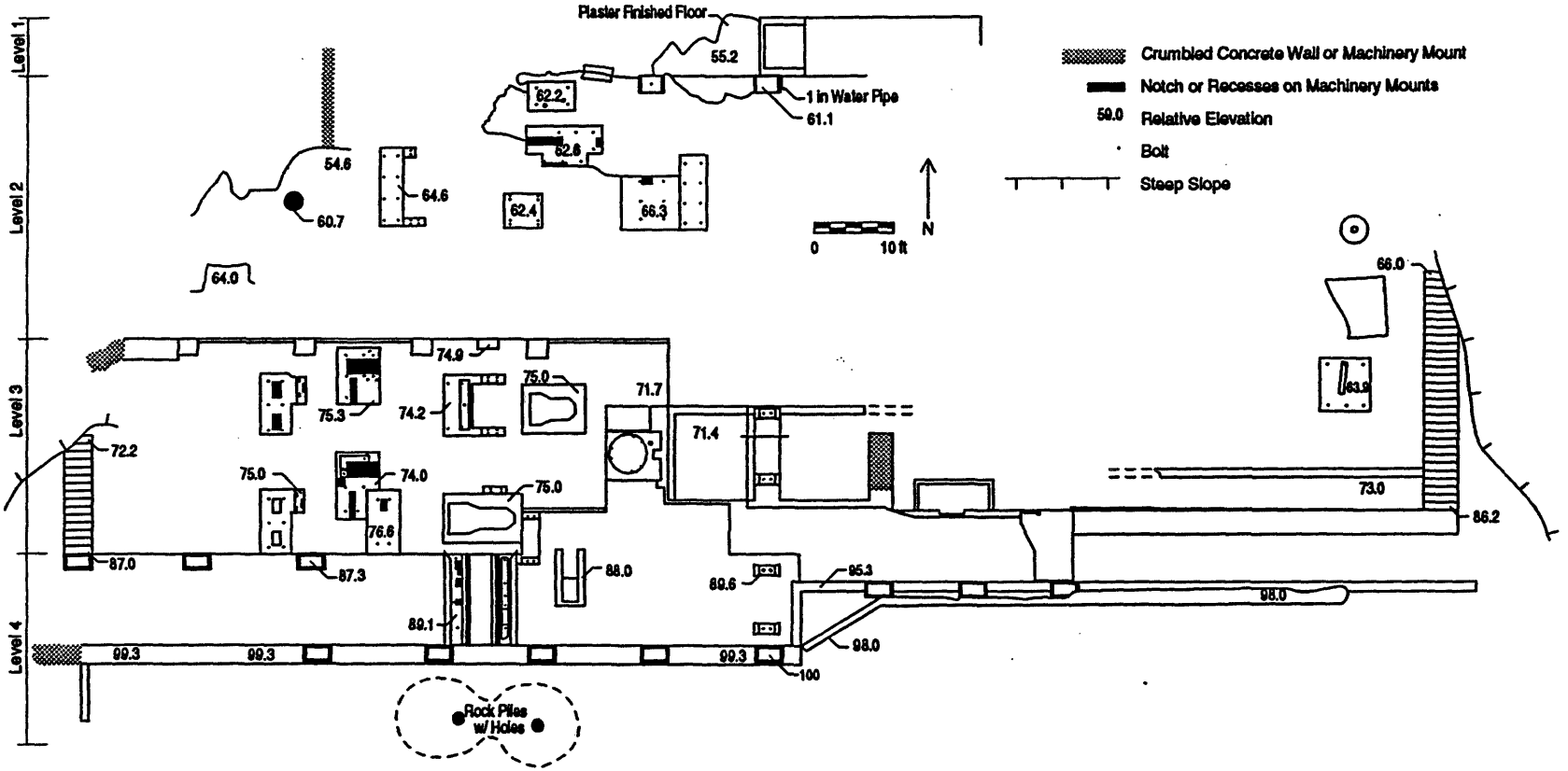
Source: Dames & Moore

— — — — Site Boundary



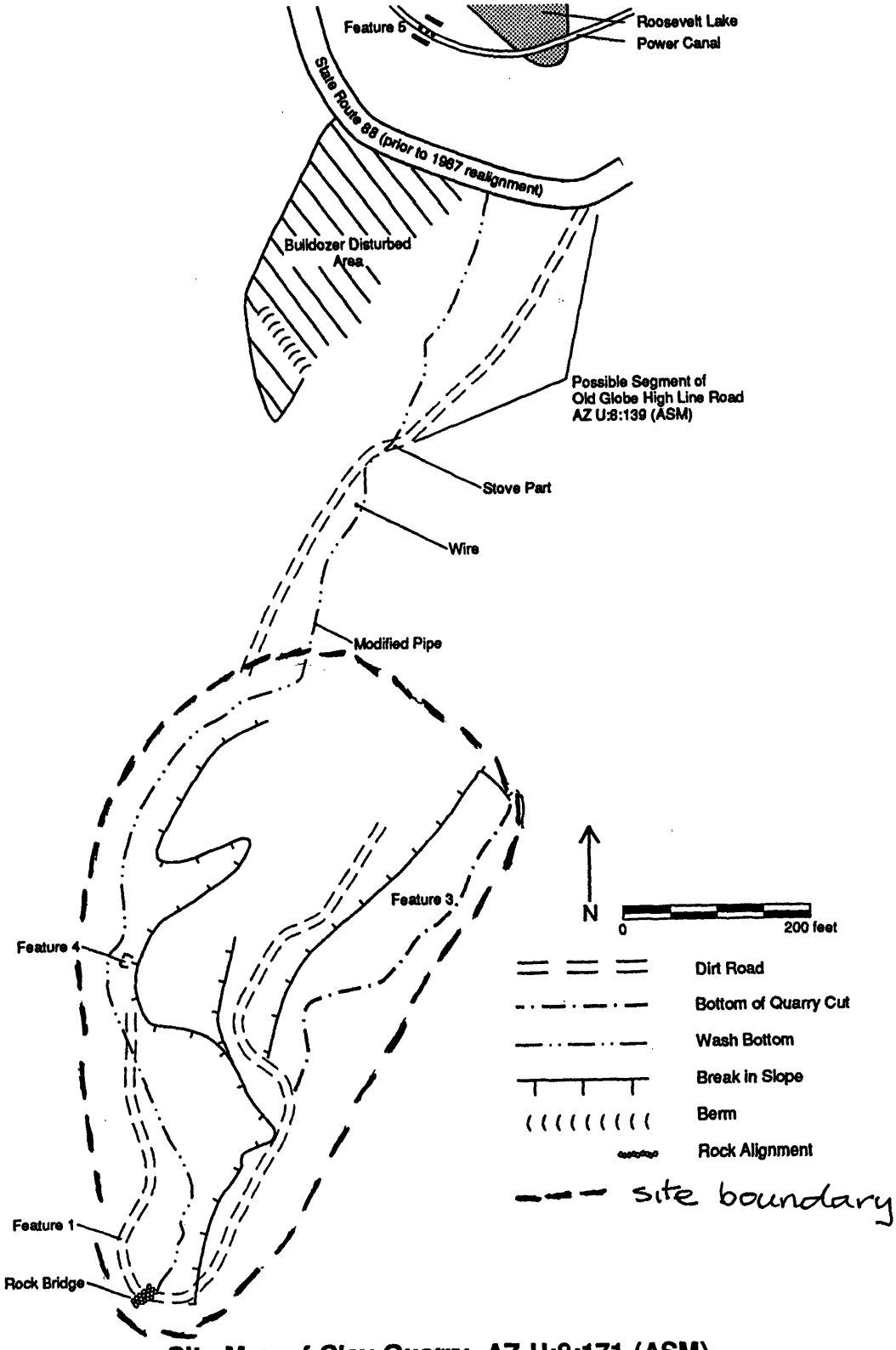
Site Map of Cement Mill, AZ U:8:167 (ASM)
Figure 7

Source: Dames & Moore



Plan of Cement Mill Foundation (Feature 1) AZ U:8:167 (ASM)
Figure 8

Source: Dames & Moore



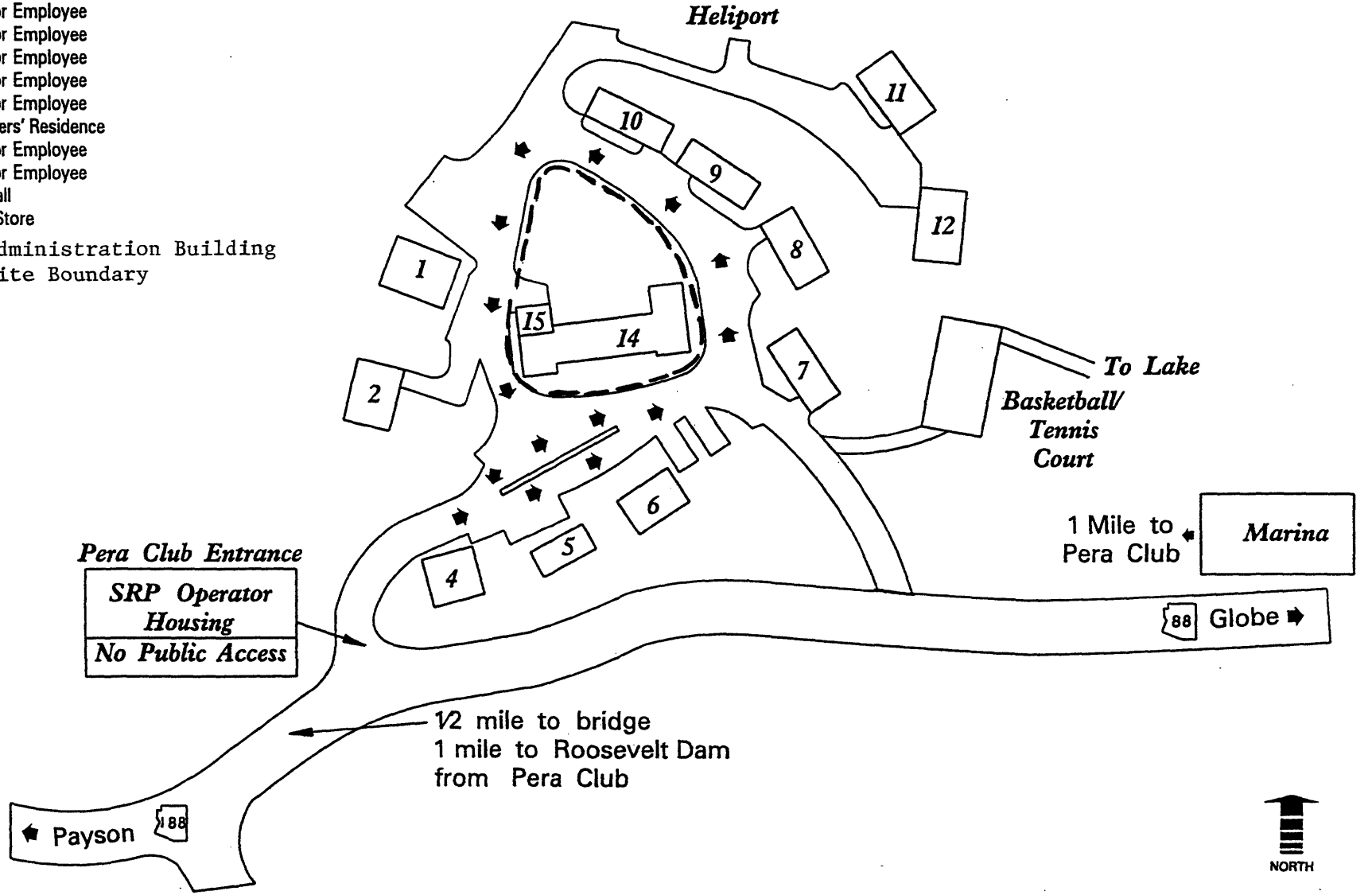
Site Map of Clay Quarry, AZ U:8:171 (ASM)
Figure 9

Source: Dames & Moore

LEGEND

1. Private Use
2. Private Use
4. Rent for Employee
5. Rent for Employee
6. Rent for Employee
7. Rent for Employee
8. Rent for Employee
9. Rent for Employee
10. Managers' Residence
11. Rent for Employee
12. Rent for Employee
14. Rec Hall
15. Office/Store

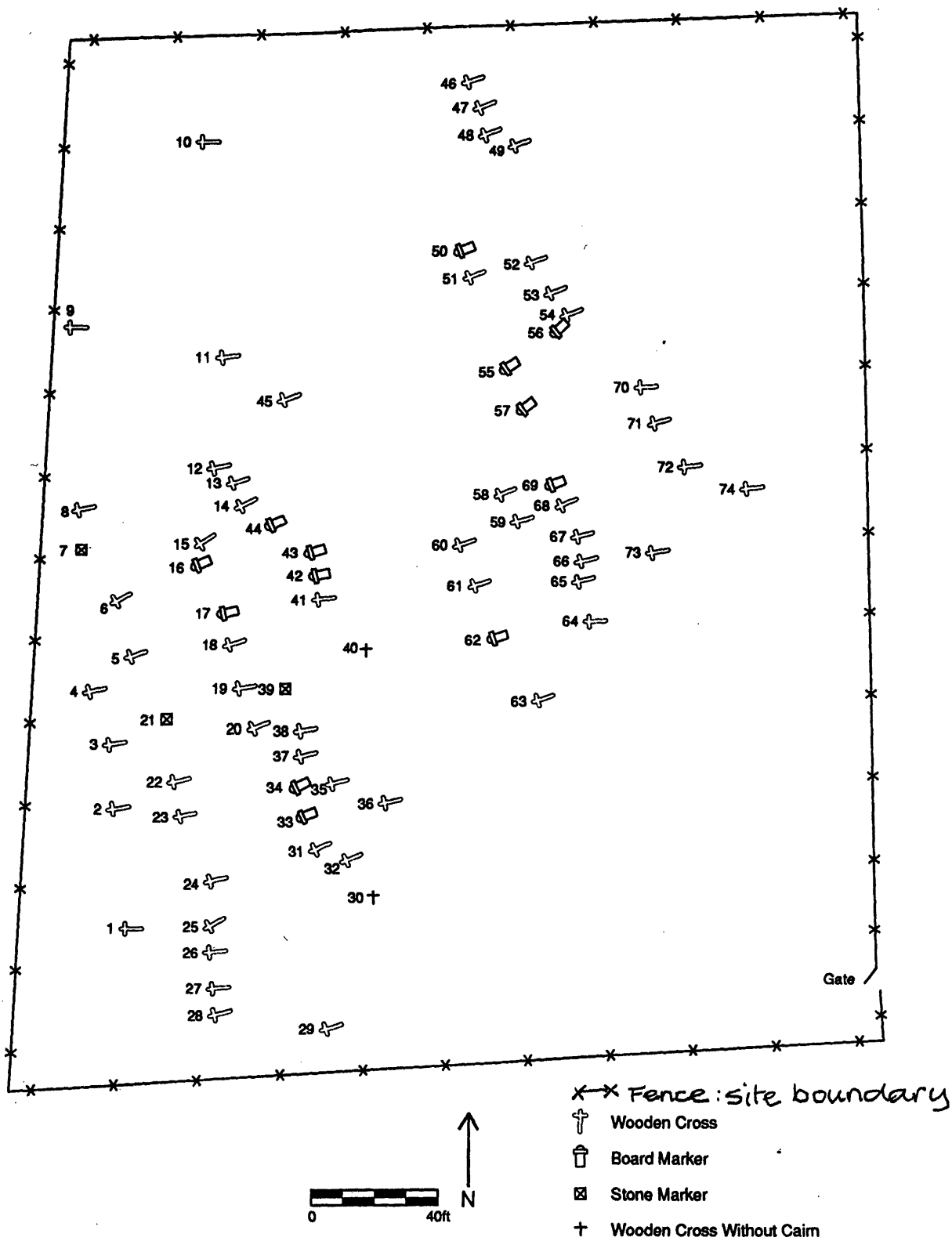
Administration Building Site Boundary



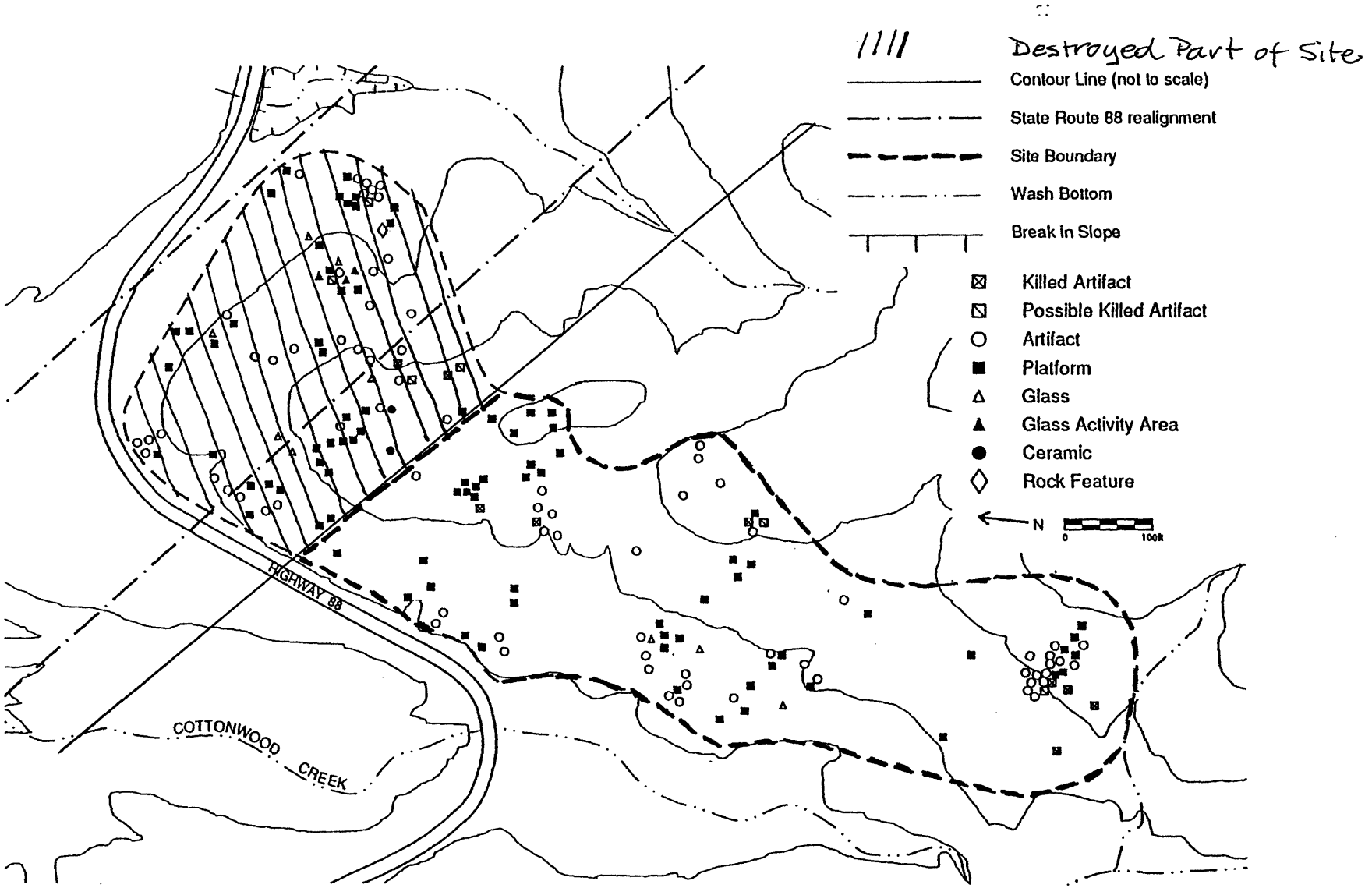
5/20/96
CAR:[140,77]
ROSHOUSE.DGN

Figure 10

Souree: PERA Club Office
at Roosevelt



Map of Roosevelt Cemetery, AZ U:8:174 (ASM)
Figure 11
Source: Dames & Moore



Site Map of Cottonwood Creek Apache Camp, AZ U:8:145(ASM)
Figure 12

Source: Dames & Moore

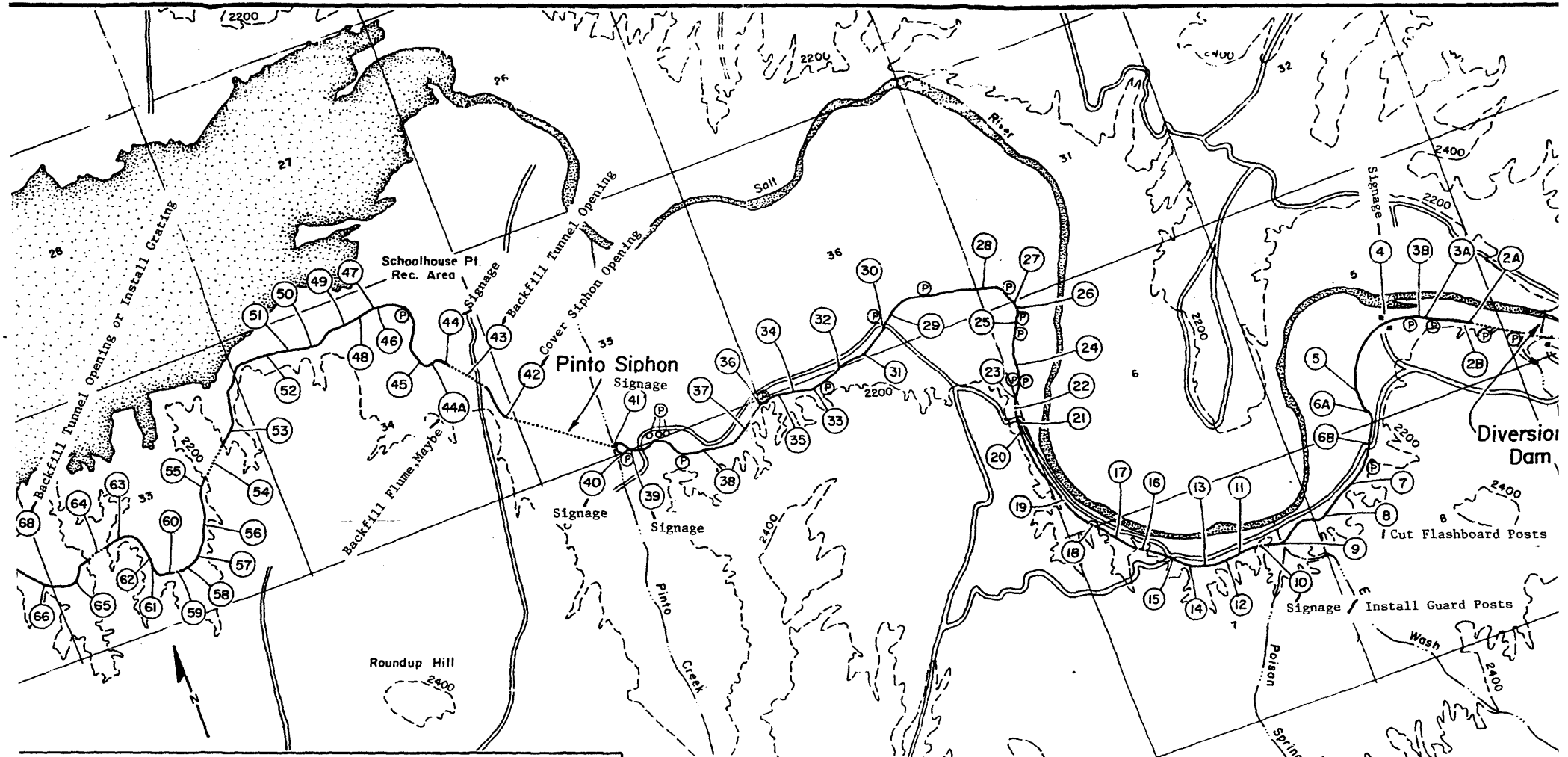
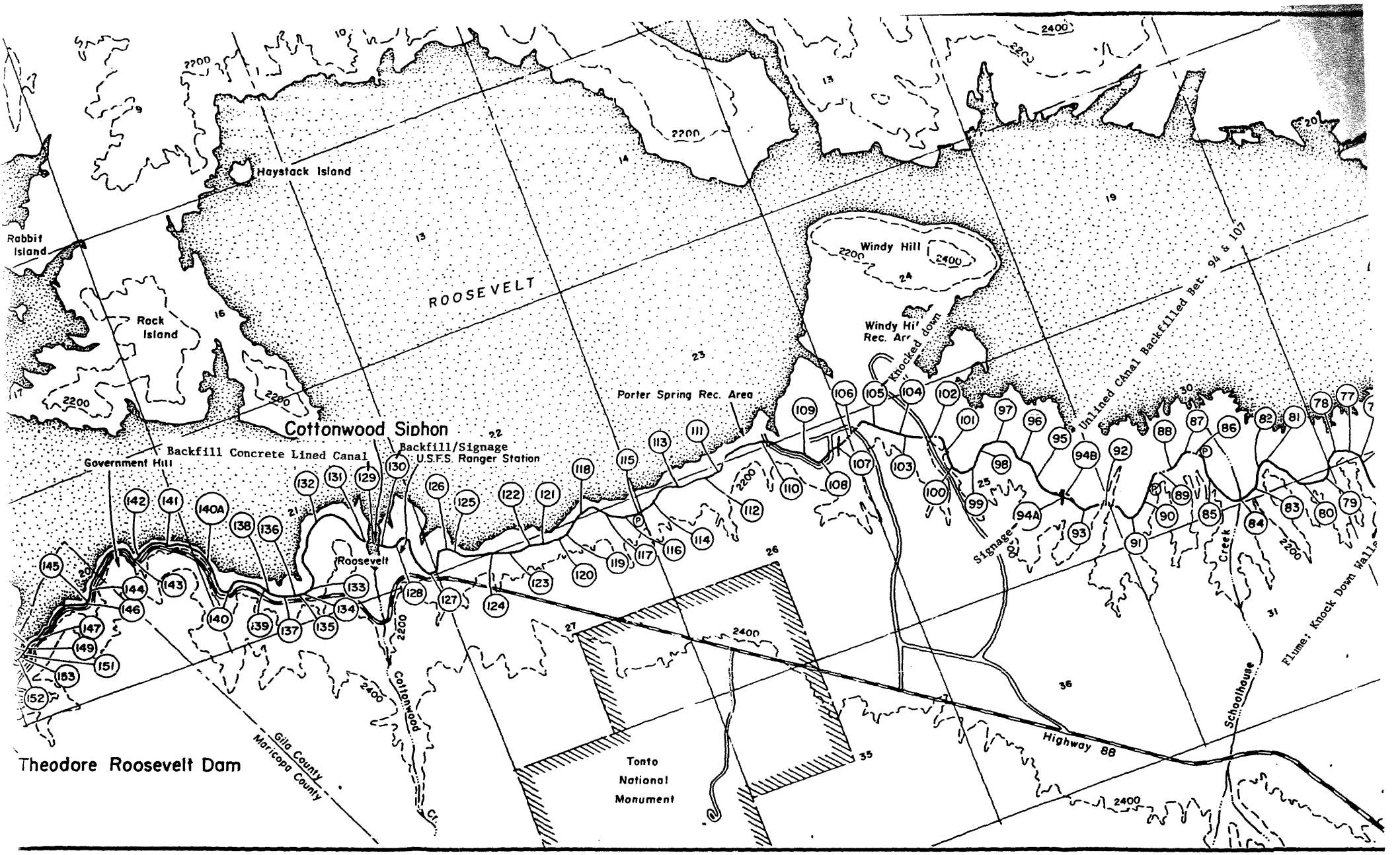


FIGURE 13
Location of Roosevelt Power Canal Components

0 1000 2000 4000
FEET

Sources: U.S.G.S. Rockinstraw Mtn. (1949), Windy Hill (1964), and T. Roosevelt Dam (1964) Quads; S.R.P. Roosevelt Power Canal Sign Location Plan (1983).


Haystack Island
Rabbit Island
Rock Island
ROOSEVELT
Windy Hill
Windy Hi' Rec. Ar
Knocked down
Unlined CAnal Backfilled Bet. 94 & 107
Porter Spring Rec. Area
Cottonwood Siphon
Backfill Concrete Lined Canal
Backfill/Signage
U.S.F.S. Ranger Station
Government Hill
Roosevelt
Signage
Creek
Flume; Knock Down Walls
Schoolhouse
Highway 88
Cottonwood Cl.
Gila County
Maricopa County
Tonto National Monument
Theodore Roosevelt Dam
2200
2400

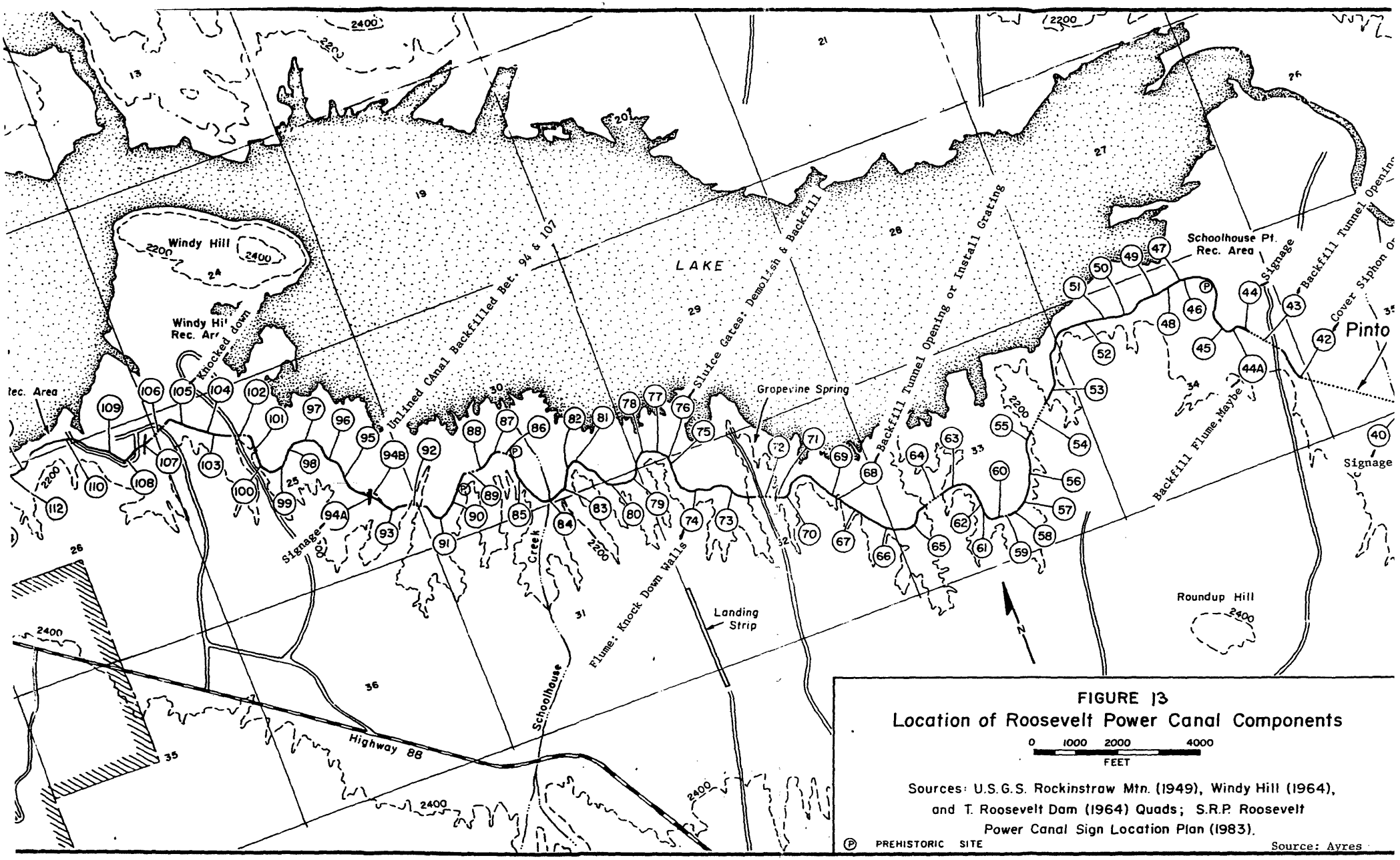


FIGURE 13

Location of Roosevelt Power Canal Components

0 1000 2000 4000

FEET

Sources: U.S.G.S. Rockinstraw Mtn. (1949), Windy Hill (1964), and T. Roosevelt Dam (1964) Quads; S.R.P. Roosevelt Power Canal Sign Location Plan (1983).

(P) PREHISTORIC SITE

Source: Ayres

TABLE 1. List of Components of the Roosevelt Power Canal

SOURCE: Archaeological Survey and Evaluation of Structural Components of the Roosevelt Power Canal. By James E. Ayres, Archaeological Research Services, Inc., 1983.

ARS Component	1907 Map #	Structure	Remarks
1A	-	Diversion Dam	(Includes intake tunnel, gate house and related features)
1B	-	Concrete Slab	Not on 1907 Map
2A	-	Tunnel Exit	
2B	-	Sluice Gate Mechanism	Not on 1907 Map
3A	OA	48" Drainage Flume	
3B	OB	Bridge	
4A	-	Concrete Slab	Not on 1907 Map
4B	-	Concrete Slab	Not on 1907 Map
4C	-	Concrete Slab	Not on 1907 Map
4D	OC	Sluice Gate	
4E	OD	Overflow Weir	
4F	-	Concrete Slab	Not on 1907 Map
4G	-	Concrete Slab	Not on 1907 Map
5	-	48" Drainage Flume	Not on 1907 Map
6A	1A	120" Drainage Flume	
6B	1B	Bridge	Not seen
7	1C	90" Drainage Flume	
8	1D	60" Drainage Flume & Overflow Weir	
9	1E	108' Cut & Cover, Lee Wash	
10	1F	Lee Tunnel, 122'	
11	2A	24" Pipe Culvert	
12	2B	24" Pipe Culvert	
13	2C	5' Arch Culvert	
14	-	Vertical Pipes in Canal Berm	Not on 1907 Map
15	-	Bridge	Not on 1907 Map
16	2D	Tunnel, 428'	

TABLE 1 (Continued)

ARS Component	1907 Map #	Structure	Remarks
17	2E	Drainage Flume & Overflow Weir	
18	2F	Tunnel, 129'	
19	2G	Tunnel, 271'	
20	2H	9' Square Culvert	
21	2I	Bridge (2)	
22	3A	Wehrli Tunnel, 151'	
23	3B	30" Drainage Flume	
24	3C	11'6" Double Arch Culvert	
25	3D	Bridge	Not Seen
26	3E	Two Sluice Gates	
27	3F	Overflow Weir	
28	3G	30" Drainage Flume	Not seen
29	-	Pipe Culvert	Not on 1907 Map
30	4A	Bridge	
31	4B	16" Double Pipe Culvert	
32	4C	30" Pipe Culvert	
33	4D	48" Drainage Flume	
34	4E	30" Pipe Culvert	
35	4F	5' Arch Culvert	
36	5A	30" Pipe Culvert	
37	5B	5' Arch Culvert	
38	5C	30" Double Pipe Culvert	
39	5D	Overflow Weir	Part of Sediment Basin
40	5E	Two Sluice Gates	Part of Sediment Basin
41	5F	Pinto Siphon, Entry Gates	Part of Sediment Basin
42	6A	Pinto Siphon, Exit Gates	
43	6B	Pinto Tunnel, 999'	
44	6C	60" Drainage Flume	
44A	-	Bridge	Not on 1907 Map
45	6L	11'6" Arch Culvert & Overflow Weir	

TABLE 1 (Continued)

ARS Component	1907 Map #	Structure	Remarks
46	7A	Bridge	
47	7B	16" Pipe Culvert	
48	7C	24" Pipe Culvert	
49	7D	30" Pipe Culvert	
50	7E	30" Double Pipe Culvert	
51	7F	16" Pipe Culvert	
52	7G	16" Pipe Culvert	
53	7H	3' Arch Culvert	
54	7I	Chilton Tunnel, 1026' & Bridge, Flume & Overflow Weir at west end	Tunnel only is on 1907 map
55	8A	16" Pipe Culvert	
56	8B	30" Pipe Culvert	Not Seen
57	8C	30" Pipe Culvert	Not Seen
58	8D	72" Drainage Flume & Bridge	
59	8E	Robinson Tunnel, 151'	
60	8F	84" Drainage Flume & Bridge	
61	8G	90" Drainage Flume & Bridge	
62	8H	24" Pipe Culvert	
63	8I	48" Drainage Flume & Bridge	
64	8J	Grey Tunnel, 761'	
65	9A	5' Arch Culvert	
66	9E	5' Arch Culvert	
67	9C	48" Drainage Flume & Bridge	
68	9D	Moffat Tunnel, 213'	
69	9E	4' Arch Culvert	
70	9F	5' Arch Culvert	Not Seen
71	9G	30" Drainage Flume	Not Seen
72	9H	Grapevine Tunnel, 872'	
73	10A	11'6" Double Arch Culvert	

TABLE 1 (Continued)

ARS Component	1907 Map #	Structure	Remarks
74	10B	30" Drainage Flume	
75	10C	Overflow Weir	
76	10D	Two Sluice Gates	
77	10E	30" Drainage Flume	
78	10F	30" Drainage Flume	Not Seen
79	10G	8' Arch Culvert	
80	10H	4' Arch Culvert	
81	11A	30" Drainage Flume	Not Seen
82	11B	30" Drainage Flume	Not Seen
83	11C	8' Arch Culvert	
84	11D	93' Cut and Cover	Changed to a siphon and overflow weir in 1916 (?)
85	11E	30" Drainage Flume & Bridge	
86	11F	Tunnel, 206' (Old #6)	
87	11G	4' Arch Culvert	
88	11H	4' Arch Culvert	
89	11I	Tunnel, 341' (Old #7)	
90	12A	48" Drainage Flume & Bridge	
91	12B	9' Arch Culvert	
92	12C	Tunnel, 553' (Old #8)	
93	12D	16" Pipe Culvert	
94A	-	155' Siphon	Not on 1907 Map; Replaced 94B
94B	12E	155' Cut & Cover	On 1907 Map; is collapsed
95	12F	30" Drainage Flume	
96	12G	48" Drainage Flume	
97	12H	4' Arch Culvert	Not Seen
98	13A	30" Pipe Culvert	Not Seen
99	13B	6' Arch Culvert	Not Seen
100	13C	16' Arch Culvert	Not Seen
101	13D	Tunnel, 320' (Old #9)	

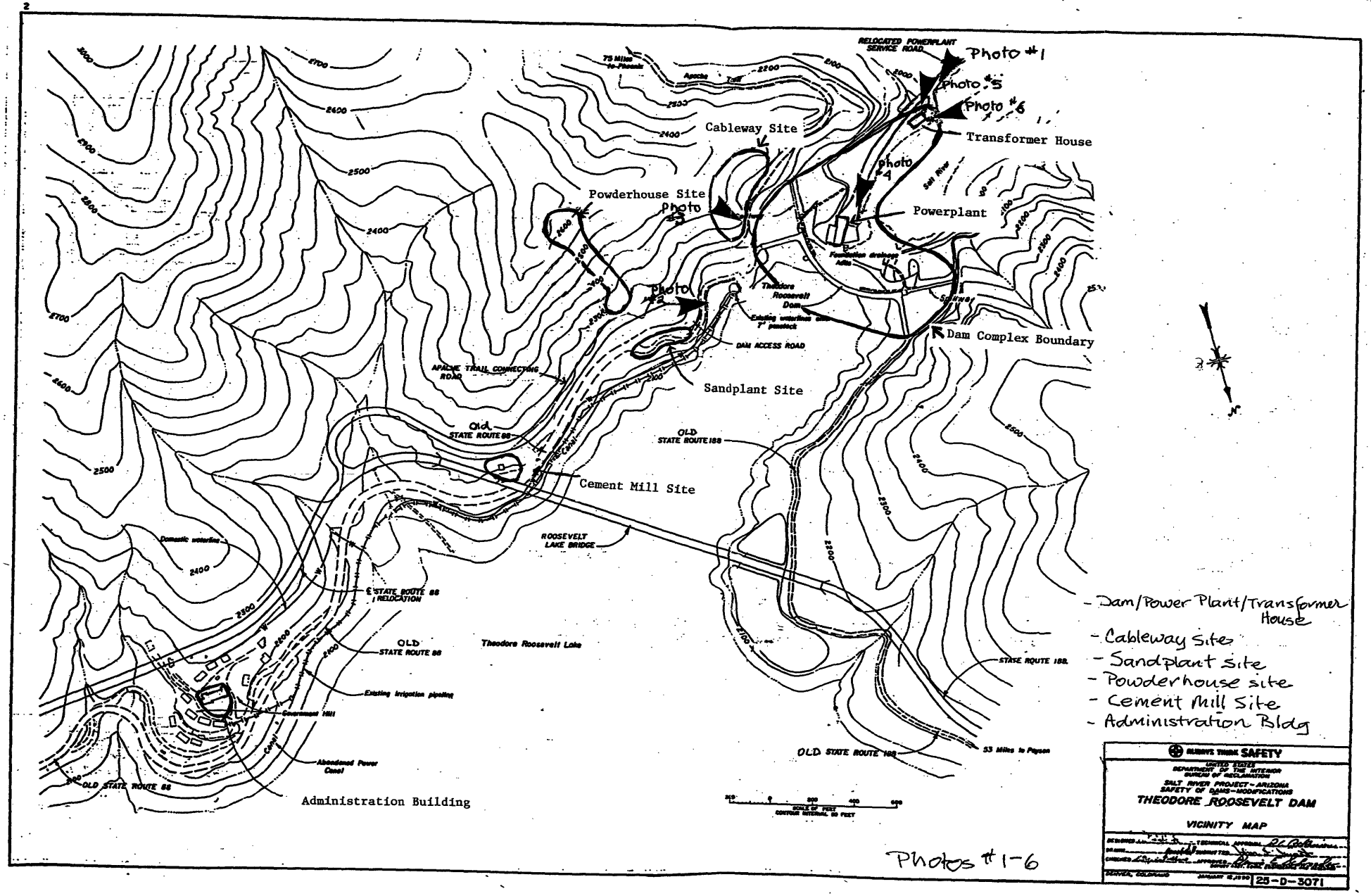
TABLE 1 (Continued)

ARS Component	1907 Map #	Structure	Remarks
102	13E	Tunnel, 489' (Old #10)	
103	13F	50' Cut & Cover	
104	13G	48" Drainage Flume	
105	13H	30" Drainage Flume	
106	13I	Tunnel, 624' (Old #11)	
107	13J	100' Cut & Cover	
108	14A	4' Arch Culvert	Inundated
109	14B	30" Pipe Culvert	Inundated
110	14C	6' Arch Culvert	Inundated
111	14D	30" Pipe Culvert	Inundated
112	14E	12' Arch Culvert	Inundated
113	14F	6' Arch Culvert	Inundated
114	14G	4' Arch Culvert	Inundated
115	15A	8' Arch Culvert	Inundated
116	15B	4' Arch Culvert	Inundated
117	15C	11'6" Arch Culvert	Inundated
118	15D	4' Arch Culvert	Inundated
119	15E	12' Arch Culvert	Inundated
120	15F	6' Arch Culvert	Inundated
121	15G	6' Arch Culvert	Inundated
122	15H	30' Cut & Cover	
123	15I	6' Arch Culvert	Inundated
124	15J	12' Arch Culvert	Inundated
125	16A	6' Arch Culvert	Inundated
126	16B	Bridge	Not Seen
127	16C	8' Arch Culvert	Inundated
128	16D	Overflow Weir	Inundated
129	16E	Two Sluice Gates	
130	16F	Cottonwood Siphon Entry Gates and House	

TABLE 1 (Continued)

ARS Component	1907 Map #	Structure	Remarks
131	16G	Cottonwood Siphon Exit Gates	Inundated
132	17A	48" Drainage Flume	Inundated
133	17B	10' Arch Culvert	Inundated
134	17C	24" Pipe Culvert	Inundated
135	17D	Bridge	Inundated
136	17E	8' Arch Culvert	Inundated
137	17F	24" Pipe Culvert	Inundated
138	17G	30" Pipe Culvert	Inundated
139	17H	24" Pipe Culvert	Inundated
140	17I	12' Arch Culvert	Inundated
140A	-	145' Siphon	Inundated
141	18A	Overflow Weir	Inundated
142	18B	Aqueduct (Kelners Wash)	Inundated
143	18C	36" Pipe Culvert	Inundated
144	18D	6' Arch Culvert	Inundated
145	18E	Aqueduct (Whitney Wash)	Inundated
146	18F	Bridge	Inundated
147	19A	Tunnel, 70' (Old #12)	Inundated
148	19B	Overflow Weir	Inundated
149	19C	Tunnel, 110' (Old #13)	Inundated
150	19D	Overflow Weir	Inundated
151	19E	Two Sluice Gates	Inundated
152	19F	Penstock Gates	Inundated
152	-	Sediment Basin at Penstock	Not on 1907 Map

PHOTOGRAPHS AND DIRECTIONAL MAPS



- Dam/Power Plant/Transformer House
- Cableway Site
- Sandplant Site
- Powderhouse site
- Cement Mill Site
- Administration Bldg

Photos #1-6

SAFETY

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

SALT RIVER PROJECT - ARIZONA
SAFETY OF DAMS - MODIFICATIONS

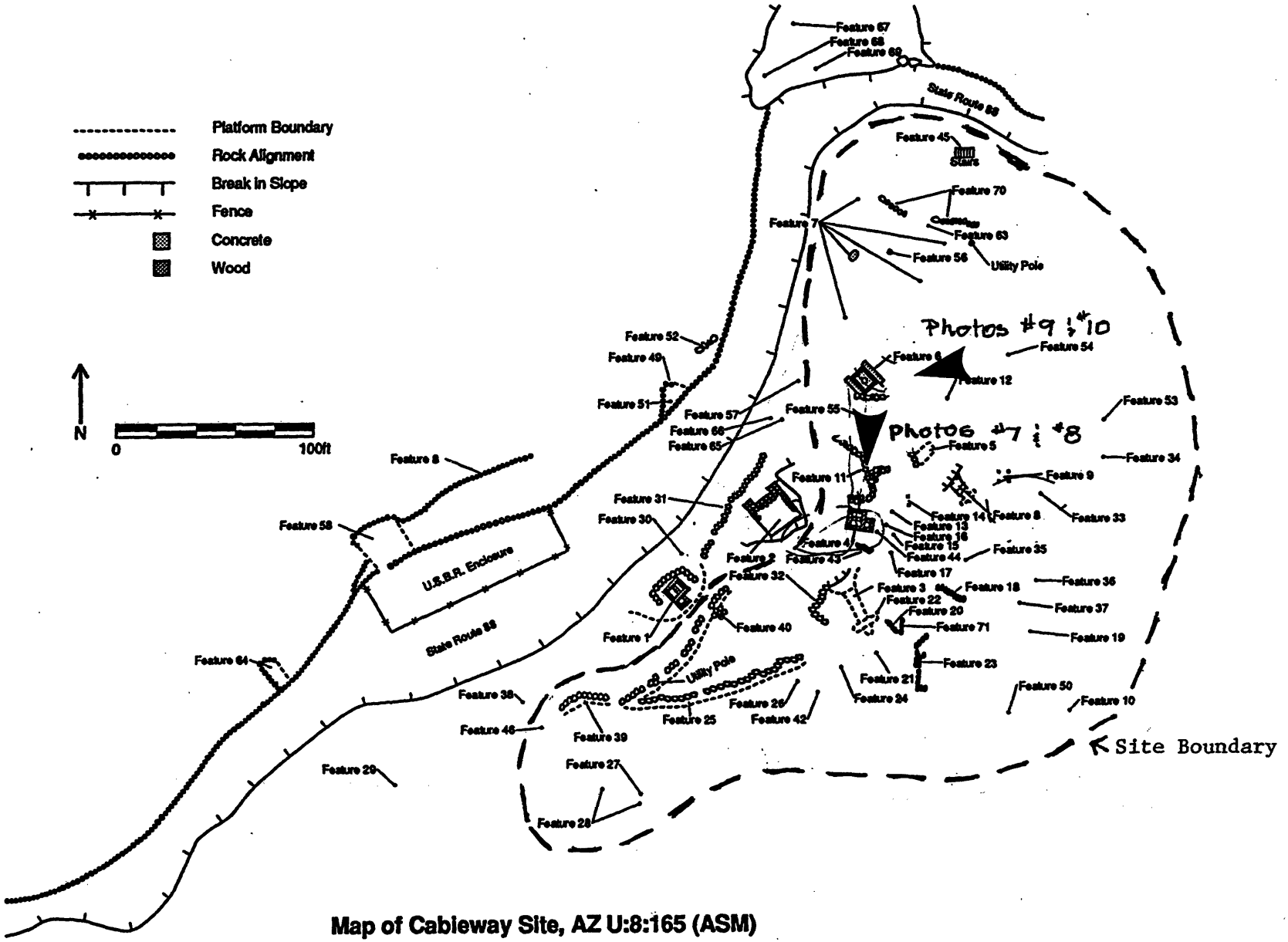
THEODORE ROOSEVELT DAM

VICINITY MAP

DESIGNED ... TECHNICAL APPROVAL ...
DRAWN ... SUBMITTED ...
CHECKED ... APPROVED ...

DENVER, COLORADO JANUARY 12, 1990

25-D-3071

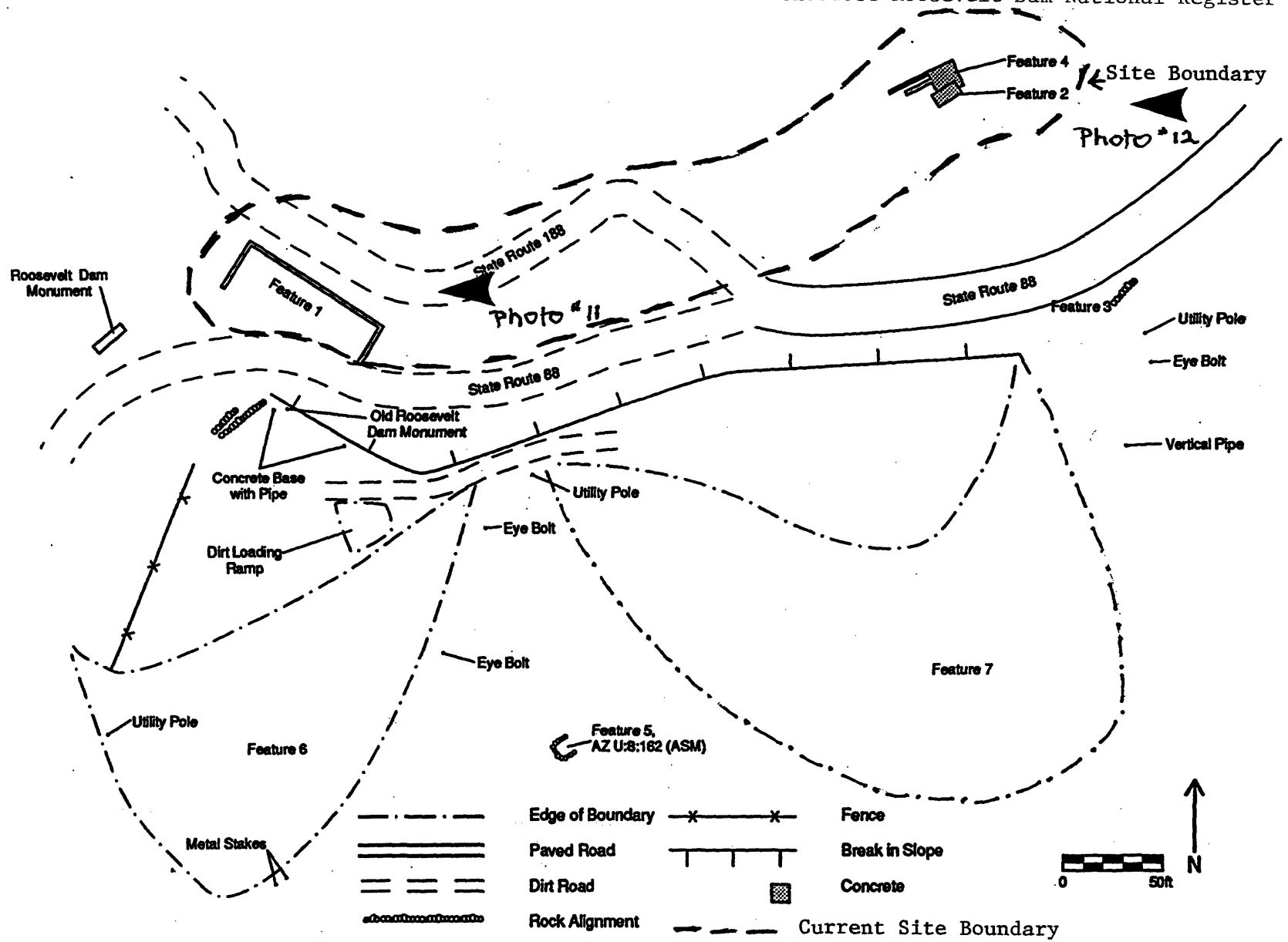


Map of Cableway Site, AZ U:8:165 (ASM)
Figure

Source: Dames & Moore

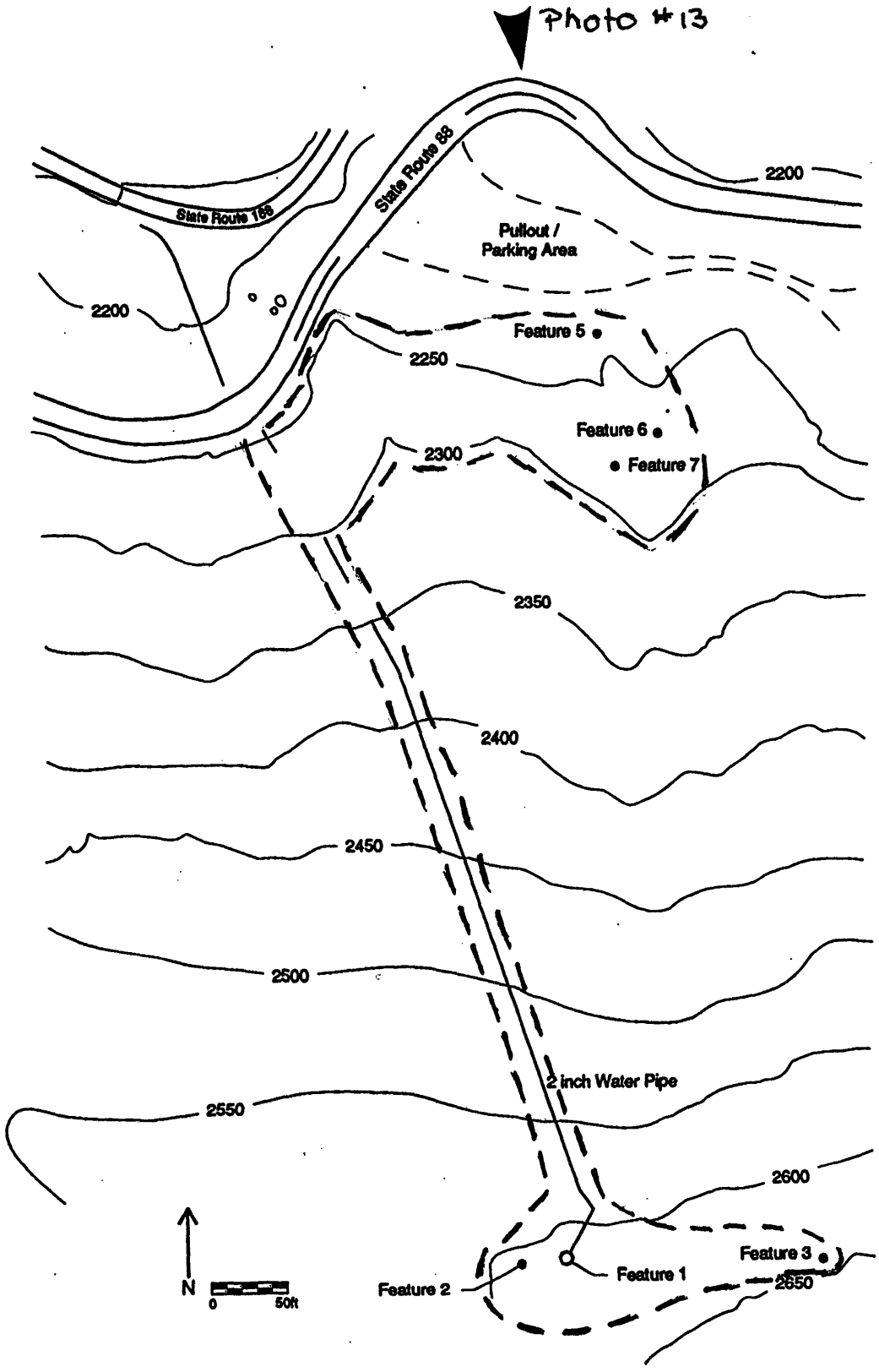
Site Boundary

Photos #7-10



Site Map of Sand Plant, AZ U:8:166 (ASM)
Figure
Source: Dames & Moore

Photos #11-12

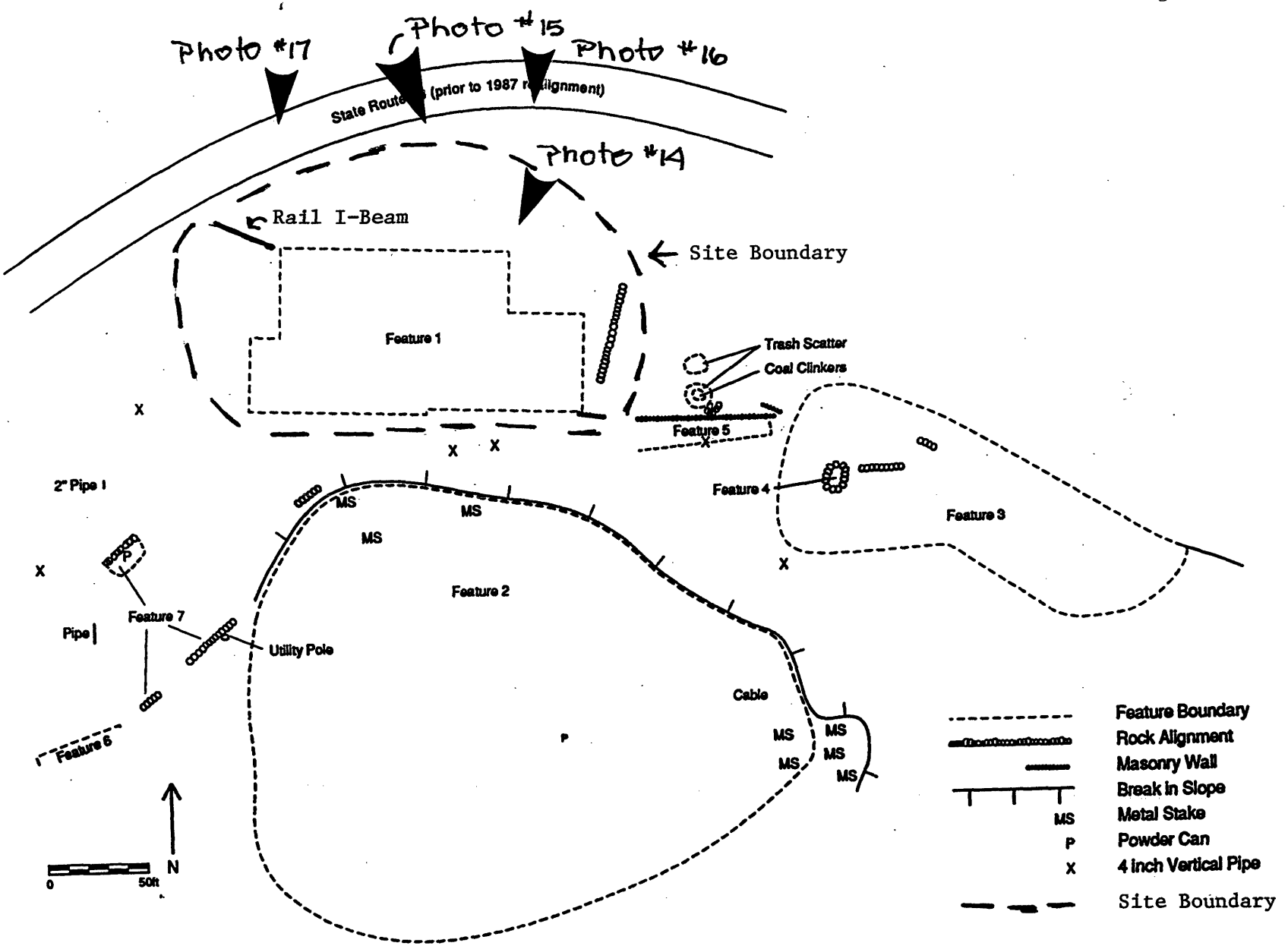


Site Map of the Powderhouse and Water Tank Site, AZ U:8:162 (ASM)
Figure

Source: Dames & Moore

— — — — Site Boundary

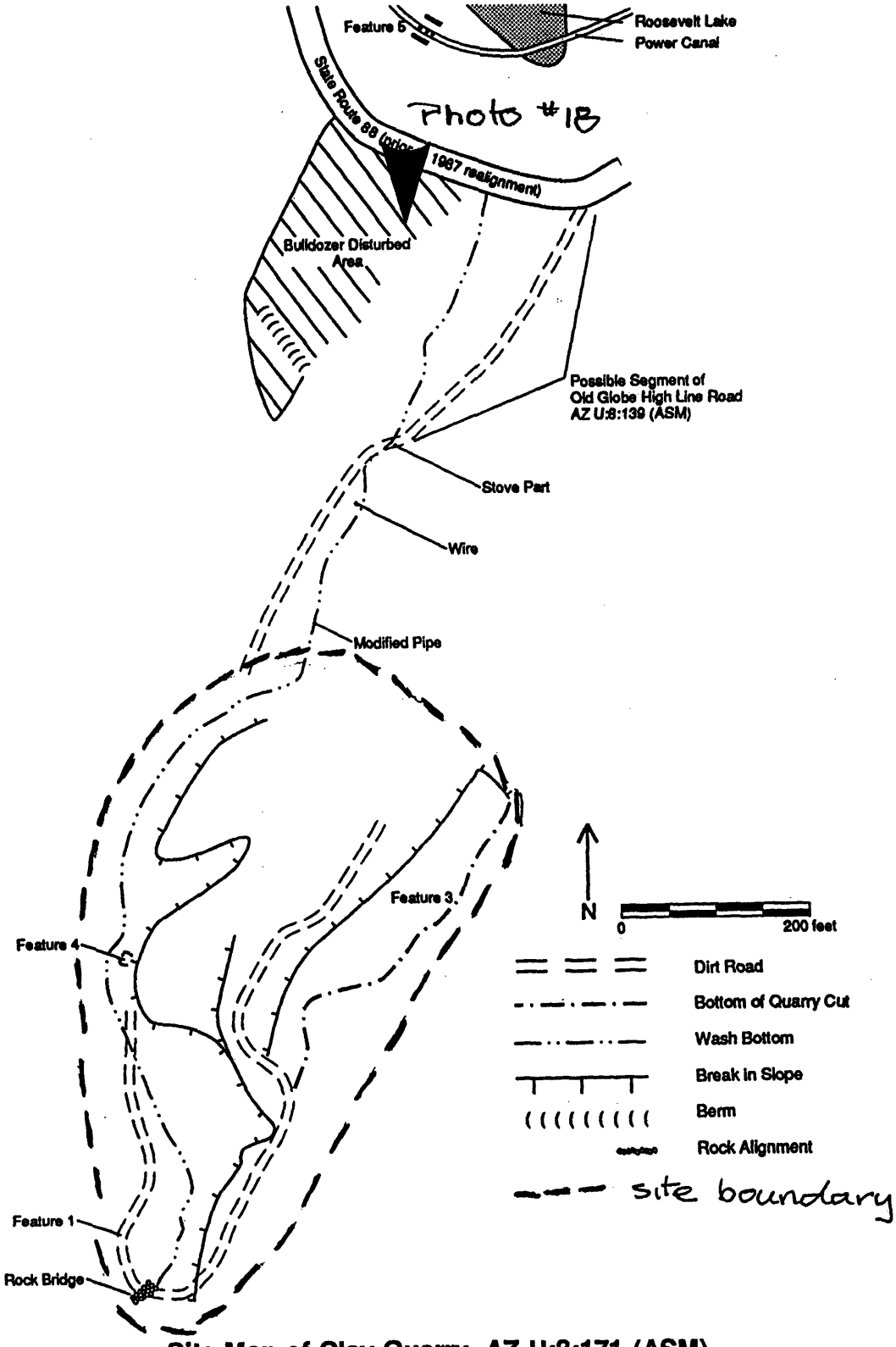
Photo #13



Site Map of Cement Mill, AZ U:8:167 (ASM)
Figure

Source: Dames & Moore

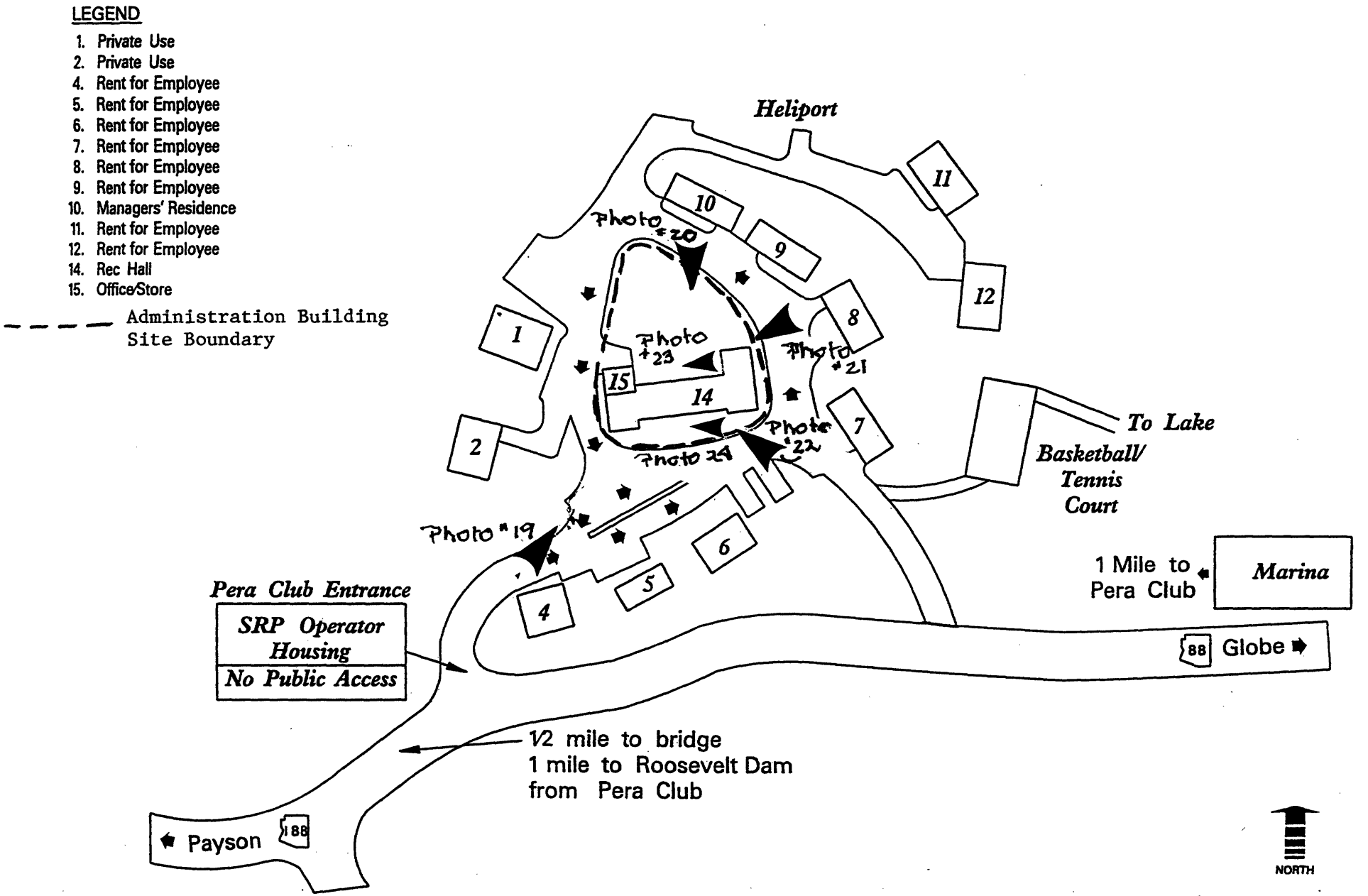
Photos #14-17



Site Map of Clay Quarry, AZ U:8:171 (ASM)
Figure

Source: Dames & Moore

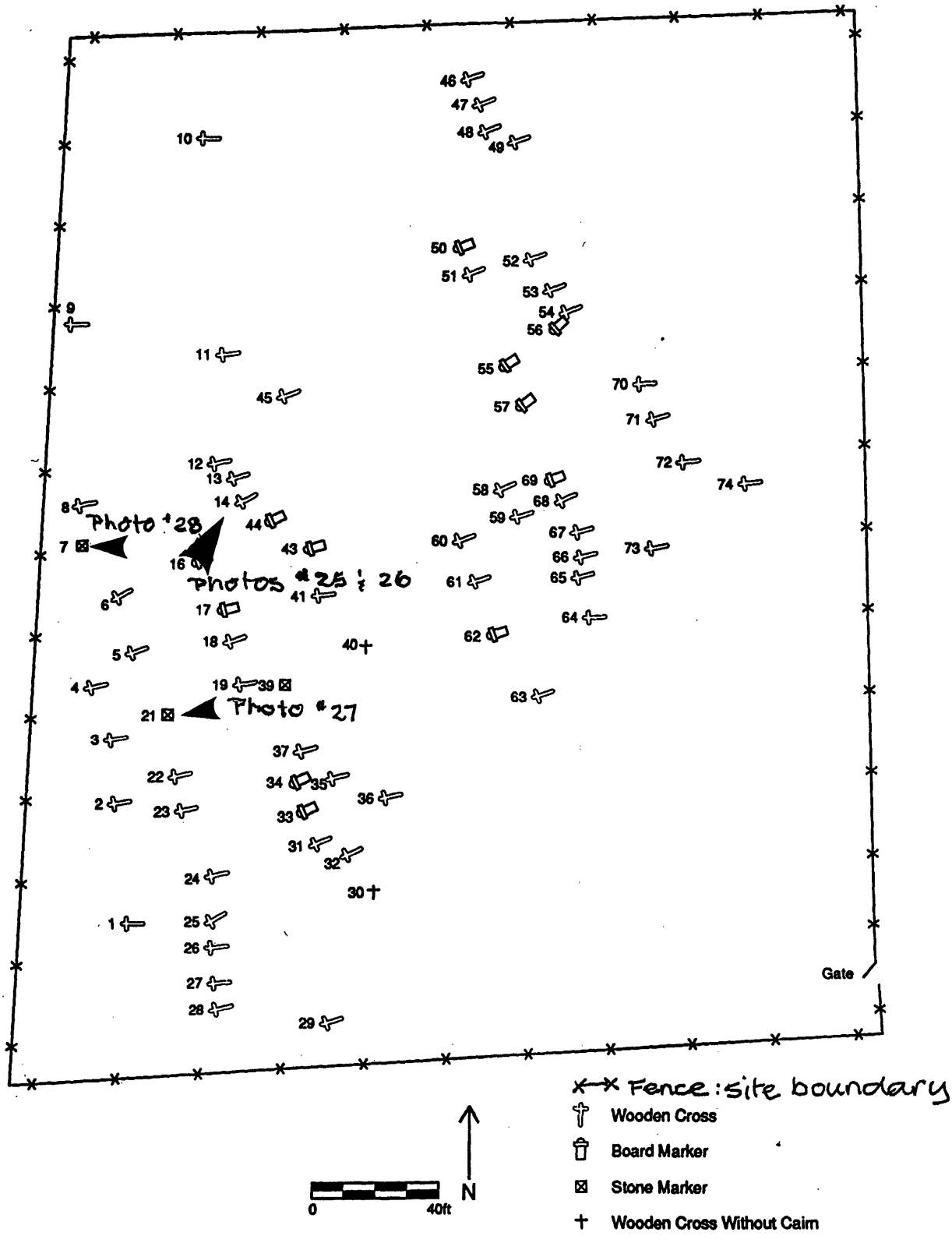
Photo #18



Photos #19-24

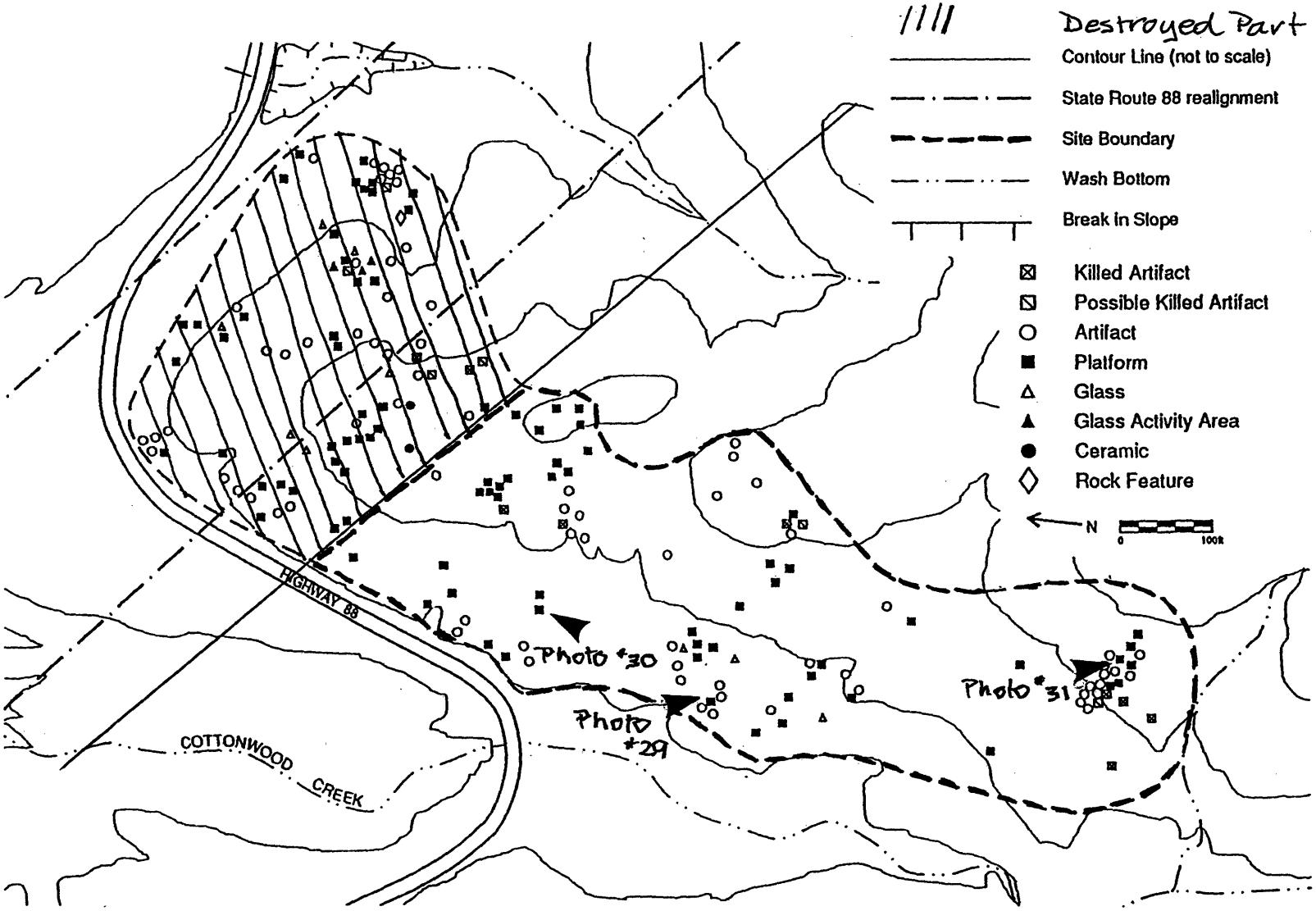
5/20/96
CAR:(140,77)
ROSHOUSE.DGN

Souree: PERA Club Office



Map of Roosevelt Cemetery, AZ U:8:174 (ASM)
Figure
Source: Dames & Moore

Photos #25-28



Site Map of Cottonwood Creek Apache Camp, AZ U:8:145(ASM)
Figure

Source: Dames & Moore

Photos #29-31

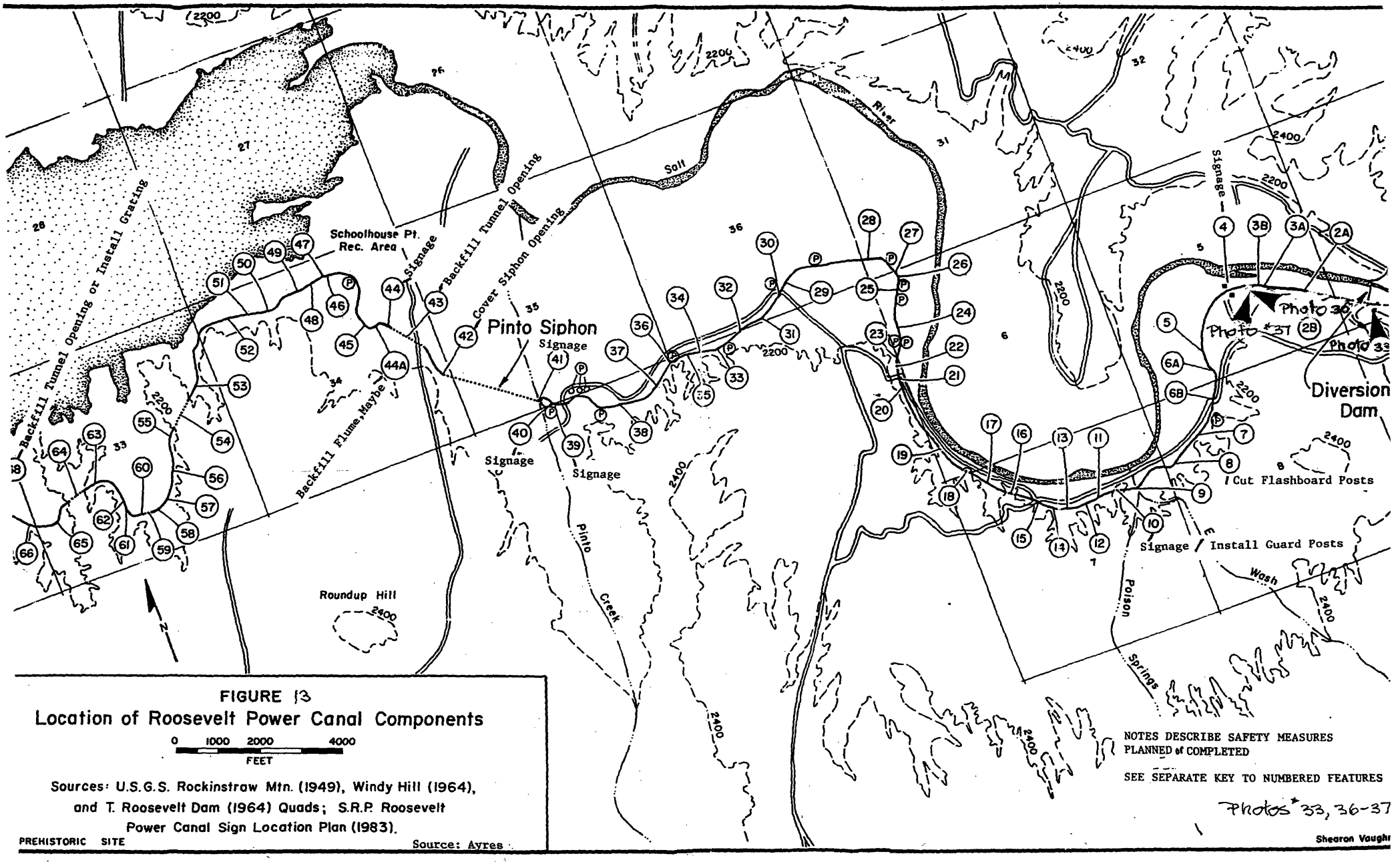


FIGURE 13

Location of Roosevelt Power Canal Components

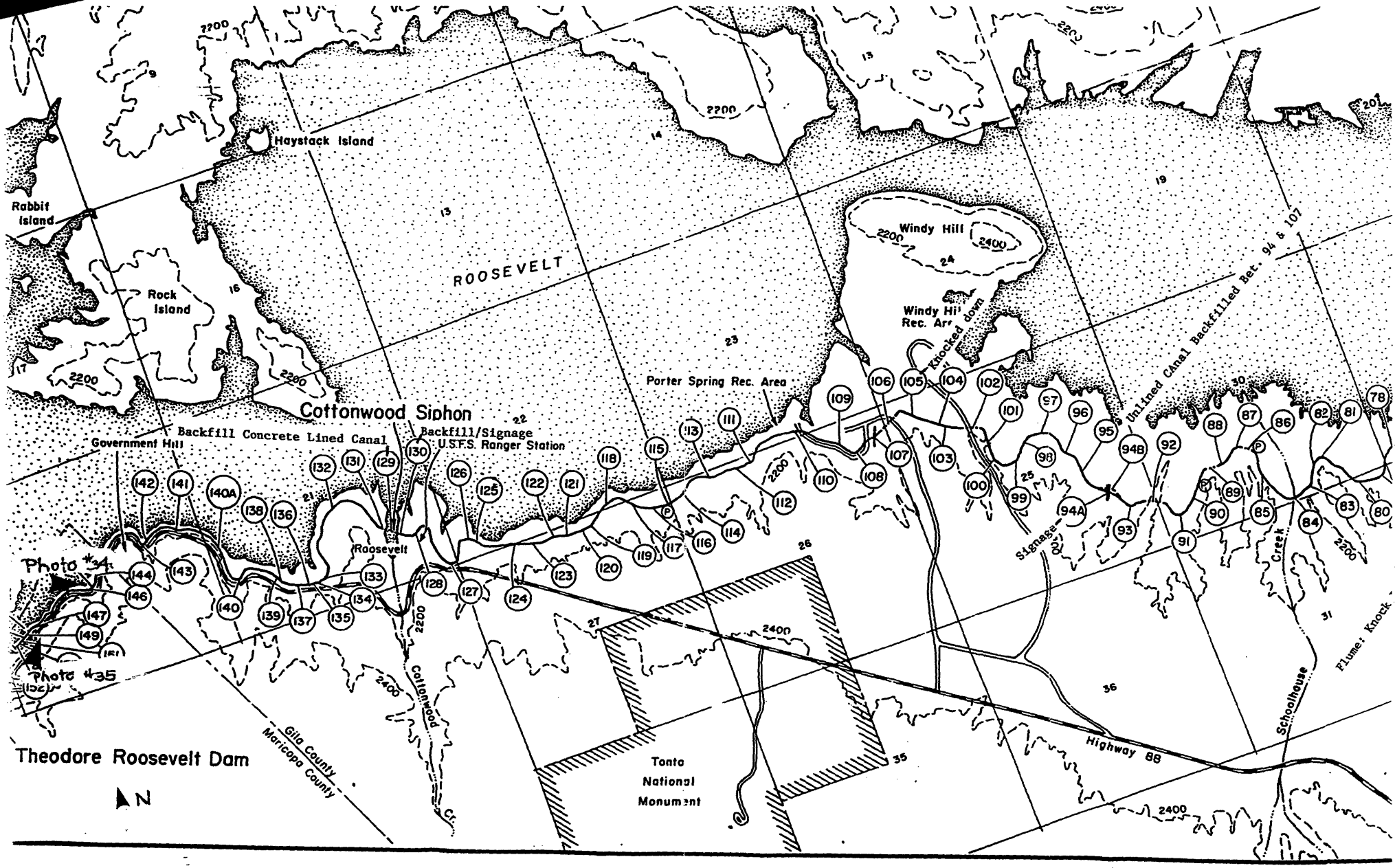
0 1000 2000 4000

FEET

Sources: U.S.G.S. Rockinstraw Mtn. (1949), Windy Hill (1964), and T. Roosevelt Dam (1964) Quads; S.R.P. Roosevelt Power Canal Sign Location Plan (1983).

PREHISTORIC SITE

Source: Ayres



Photos #34, 35

Theodore Roosevelt Dam National Register District